Automation and control
Human/Machine interfaces

Catalogue
June

04

a brand of Schneider Electric

Telemecanique

Art. 61231 - DIA6ED2030901EN

Ethernet TCP/IP
Transparent Factory

2003

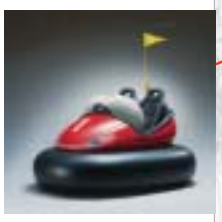
Telemecanique

Human/Machine dialogue
Communication

Art. 67341 - MKTED203111EN

Safety solutions
using Preventa

2004



Telemecanique

Control and Protection,
Detection,
Data-processing,
Human/Machine dialogue

Art. 55053 - MKTED203041EN

AS-Interface
cabling system

2003

Telemecanique

Schneider Electric

Control and Protection,
Detection,
Data-processing,
Human/Machine dialogue,
Communication

The
Essential guide

To be issued: 2nd quarter 2004

Control and signalling units
Art. 28697 - MKTED299014EN

Telemecanique

Components for
Human-Machine interfaces

2001

Merlin Gerin
Modicon
Square D
Telemecanique

Schneider Electric

Terminals and display units
Art. 96949 - MKTED2040401EN

Automation and control
Human/Machine interfaces

2004

Telemecanique

Human/Machine dialogue
Supervision

To be issued

Automation and control
Mounting systems

2004

Art. 70263 - MKTED203113EN

Automation and control
Interfaces, I/O splitter boxes
and power supplies

2003

Art. 70455 - MKTED204011EN

Automation and control
Automation and relay functions

2003

Telemecanique

Panel-building and cabling accessories

AUTC201108140EN

Distributed I/O
Advantys STB

2003

Telemecanique

AUTC201104124EN

Modicon Momentum
automation platform

2002

Telemecanique

Schneider Electric

AUTC201384126EN

Automation platform
Modicon Quantum

2003

Telemecanique

Art. 70986 - MKTED204013EN

Automation platform
Modicon Premium
and PL7 software

2004

Telemecanique

Art. 70984 - MKTED204012EN

Automation platform
Modicon TSX Micro
and PL7 software

2004

Telemecanique

An overview of the product range

- Control and protection,
- Detection,
- Data-processing,
- Human/Machine dialogue,
- Communication,
- Supervision,
- Panel-building and cabling accessories,
- Power distribution

Data-processing, Communication

Art. 66692 - DIA7ED20310006EN

Motion control
Lexium

2004

Art. 61233 - DIA7ED2030902EN

Twin Line
Motion control

2003

Art. 46753 - MKTED203011EN

Soft starters and
variable speed drives

2003

Art. 27501 - MKTED201001EN

Motor starter solutions
Control and protection
components

2001

Telemecanique

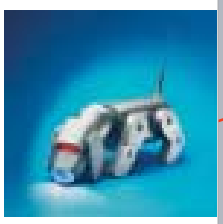
Schneider Electric

Art. 54752 - MKTED203031EN

Global Detection

Electronic and
electromechanical sensors

2003



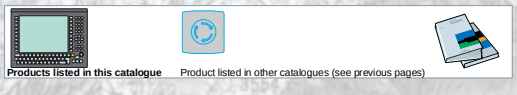
Telemecanique

Control and protection

Detection

Automation solutions

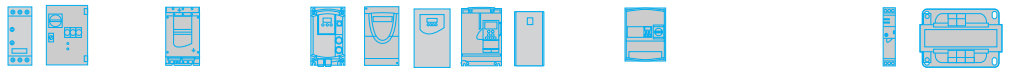
An overview of the product range



Control and protection

Contactors from 6 to 16A
Contactors from 9 to 150 A
Contactors from 185 to 800 A
Modular contactors
Circuit-breakers
Rotary switch disconnector
Thermal overload relays
Measurement and control relays
Motor starters open version
Contactor and reversing contactor breakers
Direct on-line starters, enclosed version
Star-delta starters, enclosed version

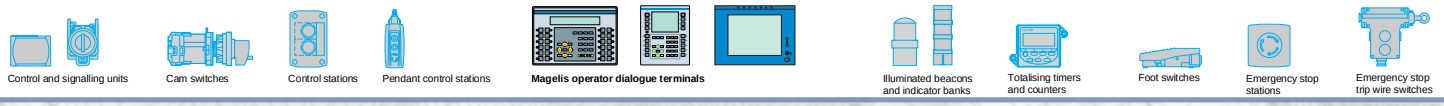
Control and protection


Soft starters open and enclosed version
Soft start-soft stop units for asynchronous motors
Variable speed drives for asynchronous motors
Ready-assembled variable speed drives
Power supplies and transformers

Detection

Data processing

Human-Machine dialogue



Communication

Modbus TCP/X-Way communication architecture: TCP/IP Ethernet network, Modbus Plus network, Fipway network, Jnet network,
AS-Interfaces cabling system, Fipio bus, CANopen bus, Uni-Telway bus, Modbus bus, INTERBUS, Profibus DP, asynchronous serial links
FactoryCast Web solutions
FactoryCast HMI Web solutions
Web and Internet technologies

Supervision

Panel building and cabling accessories

Power distribution

Prefadis service poles and posts, lighting poles
Canalis busbar trunking for lighting distribution
Canalis busbar trunking for low and medium power distribution
Canalis busbar trunking for high power distribution
Mobile distribution: Canalis track section and cable carriers

Services

Human/Machine interfaces

1 – Operator dialogue terminals

Selection guide . . . . . page 1/2

Magelis display units and terminals

Magelis compact display units . . . . . page 1/10
Magelis display units with alphanumeric screen . . . . . page 1/14
Magelis display units and terminals with matrix screen . . . . . page 1/16
Magelis terminals with alphanumeric screen . . . . . page 1/18

Magelis graphic terminals

Magelis 5" terminals with keypad or touch-sensitive screen . . . . . page 1/26
Magelis 5" and 10" terminals with touch-sensitive screen and keys . . page 1/28
Magelis 10" terminals with keypad or touch-sensitive screen . . . . . page 1/30
New Technology Magelis touch-sensitive terminals . . . . . page 1/36

2 – Magelis *i*PC industrial PLCs

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“All in one” compact products

Magelis Smart *i*PC range . . . . . page 2/9
Magelis Compact *i*PC range . . . . . page 2/9

Modular products

Magelis Modular *i*PC range . . . . . page 2/15

3 – Softwares and Web servers

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Traditional architecture, HMI executed on dedicated terminal or PC platform

XBT L1003 development software . . . . . page 3/4
Vijeo Designer configuration software . . . . . page 3/8
Vijeo Look supervisory software . . . . . page 3/10
Monitor Pro V7.2 supervisory software . . . . . page 3/24
OFS data server software . . . . . page 3/38

Web architecture, embedded HMI in PLC

Standard Web services . . . . . page 3/44
FactoryCast Web server . . . . . page 3/46
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Technical information

Automation product certifications . . . . . page 4/2

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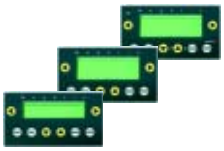
- Magelis compact display units. . . . . *page 1/11*
- Magelis display units
  - with 2-line alphanumeric screen . . . . . *page 1/15*
- Magelis display units and terminals
  - with 8-line matrix screen . . . . . *page 1/17*
- Magelis terminals
  - with 2-line alphanumeric screen. . . . . *page 1/19*
  - with 2 or 4-line alphanumeric screen. . . . . *page 1/21*

Magelis graphic terminals

- Magelis 5" graphic terminals
  - with keypad or touch-sensitive screen. . . . . *page 1/27*
- Magelis 5" or 10" graphic terminals
  - with touch-sensitive screen and keys . . . . . *page 1/29*
- Magelis 10" graphic terminals
  - with keypad or touch-sensitive screen. . . . . *page 1/31*
- New Technology Magelis touch-sensitive graphic terminals
  - with 5" screen . . . . . *page 1/37*
  - with 7", 10" or 12" screen. . . . . *page 1/39*
- Separate parts for operator dialogue terminals. . . . . *page 1/40*
- Connection to Fipio bus/Fipway network. . . . . *page 1/43*
- Connection to Modbus Plus network. . . . . *page 1/45*

Operator dialogue terminals
Magelis display units and terminals

Applications		**Display of text messages**		**Display of text messages and/or semi-graphics**
Type of unit		**Compact display units**	**Display units**	
				
Display	Type	Back-lit green LCD, height 5.5 mm or Back-lit green, orange or red LCD, height 4.34…17.36 mm	Fluorescent green matrix (5 x 7 pixels), height 5 mm or Back-lit LCD (5 x 7 pixels), height 9 mm	Back-lit monochrome matrix LCD (240 x 64 pixels), height 5.3 or 10.6 mm
	Capacity	2 lines of 20 characters or 1 to 4 lines of 5 to 20 characters	2 lines of 20 characters	4 to 8 lines of 20 to 40 characters
Data entry		Via keypad with 8 keys (4 with changeable legends)	Display only **or** via keypad with 4 function keys + 1 service key **or** 5 service keys	
Memory capacity	Application	512 Kb Flash	128 Kb/256 Kb Flash	384 Kb Flash EPROM
	Extension via type II PCMCIA	–		
Functions	Maximum number of pages	128/200 application pages 256 alarm pages	100/200 application pages 128/256 alarm pages 256 print-out form pages *(1)*	600 application pages 256 alarm pages 256 print-out form pages *(1)*
	Variables per page	40…50		50
	Representation of variables	Alphanumeric		Alphanumeric, bargraph, gauge
	Recipes	–		
	Curves	–		
	Alarm logs	–	Depending on model	
	Real-time clock	Access to the PLC real-time clock		
	Alarm relay	–	No	
Communication	Asynchronous serial link	RS 232 C/RS 485	RS 232 C/RS 485/RS 422	
	Downloadable protocols	Uni-Telway, Modbus	Uni-Telway, Modbus, AEG and for PLC brands: Allen Bradley, GE Fanuc, Omron, Siemens	
	Bus and networks	–	AS-Interface using 22.5 pitch module	
	Printer link	–	RS 232 C asynchronous serial link *(1)*	
Development software		XBT L1001 and XBT L1003 (under Windows 98, 2000 and XP)		
Operating systems		Magelis		
Type of terminal		**XBT N**	**XBT H**	**XBT HM**
Pages		1/11	1/15	1/17

(1) Depending on model.

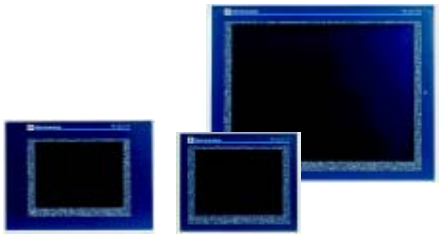
Display of text messages Control and parametering of data		Display of text messages and/or semi-graphics Control and parametering of data
Terminals		
Fluorescent green matrix (5 x 7 pixels), height 5 mm or Back-lit LCD (5 x 7 pixels), height 9 mm	Fluorescent green matrix (5 x 7 pixels), height 5 mm or Back-lit LCD (5 x 7 pixels), height 5 mm	Back-lit monochrome matrix LCD (240 x 64 pixels), height 5.3 or 10.6 mm
2 lines of 20 characters	2 or 4 lines of 40 characters	4 to 8 lines of 20 to 40 characters
Via keypad with 8 function keys + 9 service keys **or** keypad with 12 function keys + 10 service keys + 12 numeric keys	Via keypad with 24 function keys + 10 service keys + 12 alphanumeric keys	Via keypad with 12 function keys 10 service keys 12 numeric keys 4 soft function keys
256 Kb Flash EPROM	384 Kb Flash EPROM	512 Kb Flash EPROM
–		
400 application pages 256 alarm pages 256 print-out form pages *(1)*	800 application pages 256 alarm pages 256 print-out form pages *(1)*	800 application pages 256 alarm pages 256 print-out form pages *(1)*
50		
Alphanumeric		Alphanumeric, bargraph, gauge
–		
–		
Depending on model		
Access to the PLC real-time clock	Built-in	Access to the PLC real-time clock
No	Yes	No
RS 232 C/RS 485/RS 422		
Uni-Telway, Modbus, AEG and for PLC brands: Allen Bradley, GE Fanuc, Omron, Siemens		
AS-Interface using 22.5 pitch module	–	AS-Interface using 22.5 pitch module
RS 232 C asynchronous serial link *(1)*		
XBT L1001 and XBT L1003 (under Windows 98, 2000 and XP)		
Magelis		
XBT P	**XBT E**	**XBT PM**
1/19	1/21	1/17

Operator dialogue terminals
Magelis graphic terminals

Applications		**Display of text messages and graphic objects** **Control and parametering of data**
Type of unit		**Graphic terminals**

Display	Type	Back-lit monochrome LCD (320 x 240 pixels) or Colour LCD STN with touch-sensitive screen (320 x 240 pixels) with optimum viewing angle *(1)*	
	Capacity	5.7"	
Data entry		Via touch-sensitive screen 4 tactile feedback keys (XBT-FC)	Via keypad with 10 static function keys 8 soft function keys 12 service keys 12 alphanumeric keys
Memory capacity	Application	8 Mb Flash EPROM (via PCMCIA type II card)	
	Extension	By PCMCIA type II card, 8 or 16 Mb	
Functions	Maximum number of pages	50 to 720 application, alarm, help and print-out form pages depending on the memory card used (512 alarms maximum)	
	Variables per page	64	
	Representation of variables	Alphanumeric, bitmap, bargraph, gauge, potentiometer, selector	
	Recipes	125 records maximum with 5000 values maximum	
	Curves	16	
	Alarm logs	Yes	
	Real-time clock	Access to the PLC real-time clock	
	Alarm relay	Yes	
Communication	Asynchronous serial link	RS 232 C/RS 485/RS 422	
	Downloadable protocols	Uni-Telway, Modbus, AEG and for PLC brands: Allen Bradley, GE Fanuc, Omron, Siemens	
	Bus and networks	Modbus Plus, Fipio/Fipway with add-on PCMCIA type III card, Ethernet 10/100 TCP/IP *(1) (2)*	
	Printer link	RS 232 C asynchronous serial link (depending on model)	
Development software		XBT L1003 (under Windows 98, 2000 and XP)	
Operating systems		Magelis	
Type of terminal		**XBT F01/F03/FC**	
Pages		1/27	

(1) Depending on model.
(2) TCP/IP with Modbus protocol for XBT F.
(3) Uni-Telway version V2 for Nano/Micro/Premium PLCs.

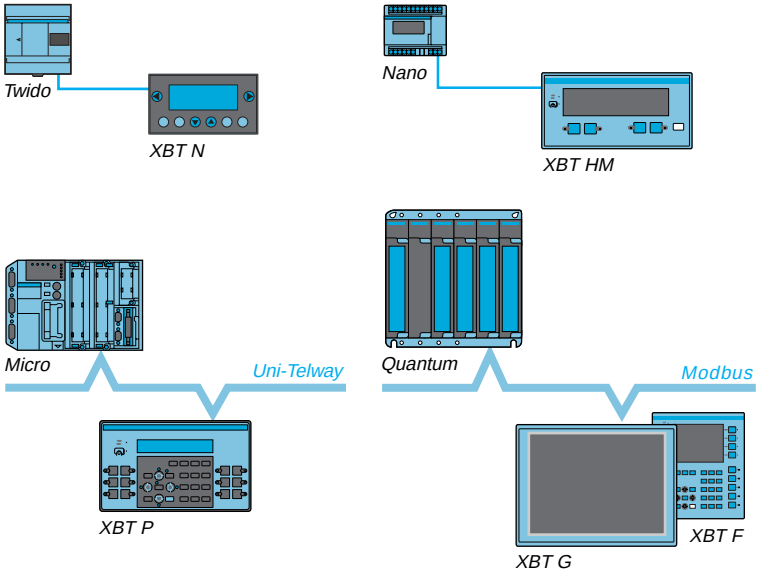
		New Technology touch-sensitive graphic terminals
		
Back-lit monochrome LCD (640 x 480 pixels) or Back-lit colour LCD TFT (640 x 480 pixels) with optimum viewing angle *(1)*		Back-lit monochrome (blue or black and white mode) or colour LCD STN or LCD TFT (320 x 240 pixels) or Back-lit colour LCD TFT (640 x 480 pixels or 800 x 600 pixels) or Back-lit colour LCD STN (640 x 480 pixels)
9.5" (monochrome) 10.4" (colour)		5.7" (monochrome or colour) 7.4", 10.4" and 12.1" (colour)
Via touch-sensitive screen 8, 12 or 16 tactile feedback keys (XBT-FC) *(1)*	Via keypad with 12 static function keys 10 soft function keys 12 service keys 12 alphanumeric keys	Via touch-sensitive screen *(1)*
		4…8 Mb *(1)*
		By "Compact Flash" card, 16 or 32 Mb
30 to 480 application, alarm, help and print-out form pages depending on the memory card used (512 alarms maximum)		Limited by the internal Flash memory capacity or "Compact Flash" card memory capacity
		Unrestricted
		Alphanumeric, bitmap, bargraph, gauge, button, light, clock, flashing light, keypad
		–
		Yes, with log
		Built-in
		–
		RS 232 C/RS 485
		Uni-Telway *(3)*, Modbus, Modbus TCP/IP
		Ethernet *(1)*, IEEE 802.3 10BaseT, RJ 45
		For future use
		VJD SPUL FUCDV10M (under Windows 2000 and XP)
		Magelis (CPU 100 MHz RISC)
XBT F02/F03/FC		**XBT G**
1/27, 1/29 and 1/31		1/37 and 1/39

Operator dialogue terminals
Architectures,
connection to automated systems

Architectures, connection to automated systems

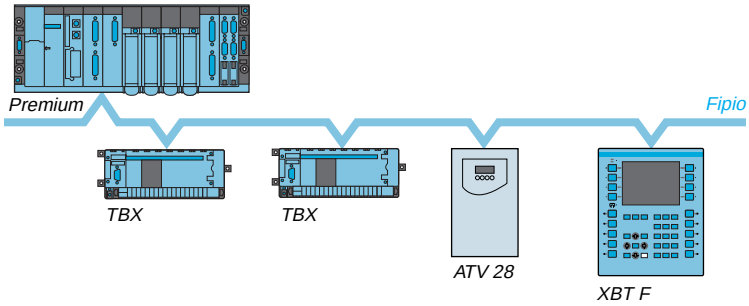
Magelis operator dialogue terminals communicate with automated system equipment:
- Via serial link.
- Via fieldbus.
- In network architectures.
- By integration into an architecture with Ethernet TCP/IP network.

Point-to-point or multidrop connection with the PLC via serial link



All terminals incorporate an RS 232 C, RS 422/485 asynchronous serial link as standard.
The use of a Uni-TE, Modbus or KS protocol means that communication can be set up easily with Schneider Electric PLCs: Telemecanique, Modicon, April or A-Line.
Third party protocols provide connection to PLCs offered by major manufacturers on the market:
- DF1, DH485 for Allen Bradley PLC5/SLC500 PLCs.
- SNPX for General Electric series 90 PLCs.
- Sysway for Omron C200 PLCs.
- AS511/3964R, MPI/PPI for Siemens Simatic S5/S7 PLCs.

Connection to PLCs via fieldbus

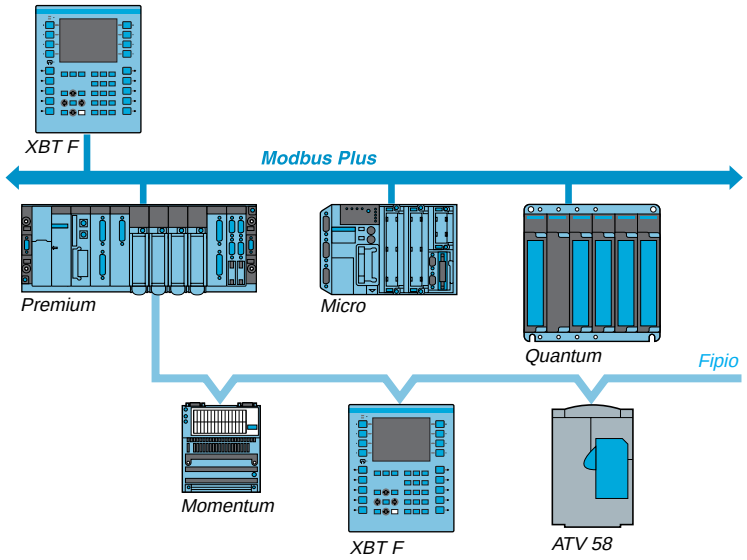


The addition of a type III PCMCIA communication card to XBT F graphic terminals enables connection to various industrial buses:
- Fipio Bus.
- Modbus Plus Bus.

XBT F terminals with graphic screen use the bus master PLC to provide operator dialogue and interactive control of various devices connected to the bus.
Several terminals with graphic screen can be connected on the same bus.

Operator dialogue terminals
Architectures, connection to automated systems

Integration in network architectures

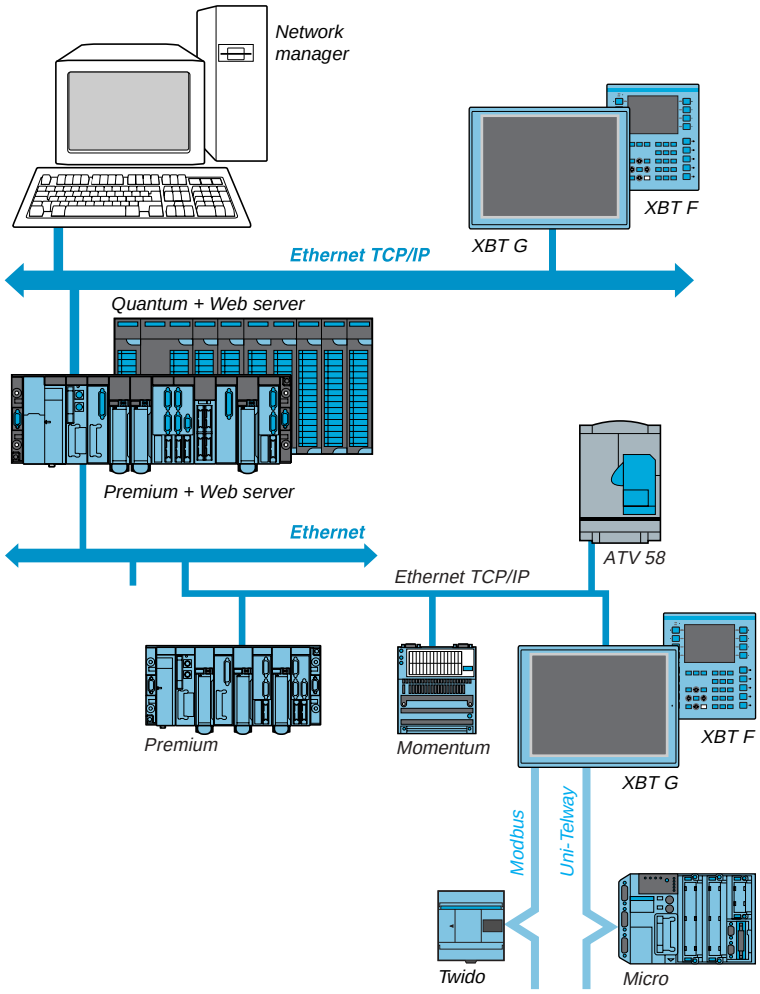


The addition of a type III PCMCIA communication card to XBT F graphic terminals means that they can be integrated in single or multi-network architectures:
- Fipway network.
- Modbus Plus network.

The following can be connected on the same network:
- One terminal with graphic screen, which has a multistation PLC view.
- Several terminals, which are totally independent.

Each terminal is assigned to controlling specific network stations.

Integration in an architecture with Ethernet TCP/IP network



Automation platforms provide transparent routing of X-Way and Uni-TE messages from a TCP/IP network to an X-Way network and vice versa.

The various services offered are:
- Uni-TE TCP/IP messaging (for XBT F, access via Ethernet TCP/IP X-Way protocol).
- Modbus TCP/IP messaging (for XBT G and XBT F, access via Ethernet TCP/IP Modbus protocol).

Please refer to our “Modicon Premium automation platform and PL7 software” catalogue.

Operator dialogue terminals
Magelis compact display units

Presentation

XBT N200

XBT N401

Magelis XBT N compact display units are used to represent messages and variables.

Various keys can be used to:
- modify variables,
- control the device,
- browse in a dialogue application.

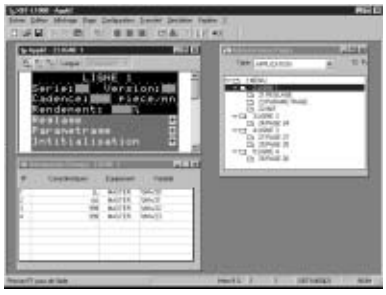
Operation

"Entry" customisation

"Control" customisation

All Magelis compact display units have the same ergonomic user interface:
- 2 service keys (◀, ▶), configurable for contextual link or control,
- 2 service keys (ESC, ENTER), non configurable,
- 4 customisable and configurable keys, either as function keys (control mode) or service keys (entry mode).

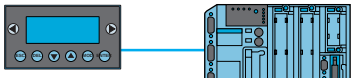
Configuration


XBT N400

Magelis compact display units can be configured using the XBT L100● software, in a Windows environment.

The XBT L100● software uses the concept of pages: each page can be viewed in its entirety. A 2 or 4-line window, depending on the display unit model to be configured, enables viewing the screen of this virtual terminal.

Communication


XBT N display unit — *PLC*

XBT N display units communicate with PLCs via an integrated point-to-point or multidrop serial link for XBT N401.

The communication protocols used are those of Schneider Electric PLCs (Uni-Telway, Modbus).

Characteristics: page 1/10
References: page.1/11
Dimensions: page 1/46

Operator dialogue terminals
Magelis compact display units

Functions

XBT N compact display units have, on the front panel, function keys and service keys (according to “control” and “entry” customisation).

Function keys (F1, F2, F3, F4)

Function keys are defined for the whole application.
They can be used for:
- accessing a page,
- latching memory bits,
- toggling memory bits (ON/OFF).

Service keys

- Service keys ◀, **ESC**, **DEL**, ▼, ▲, **MOD**, **ENTER**, ▶ are used for modifying the parameters of the automated system.

They perform the following actions:

ESC Cancel an entry, suspend or stop a current action, go back up a level in a menu.

DEL Delete the character selected in entry mode.

MOD Select the variable field to enter. Authorise the entry of the next field, on each press, from left to right and top to bottom.

ENTER Confirm a selection or entry, acknowledge an alarm.

- The “arrow” keys are used to:

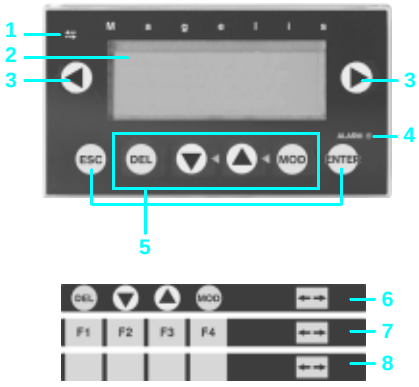
◀ ▶
- change page within a menu,
- display the current alarms,
- change a digit in a variable field being entered,
- activate the function associated with a functional link,

▼ ▲
- move up and down within a page (XBT N40●),
- select the value of a digit,
- select a value from a list of choices,
- increment or decrement the value of a variable field.

Description

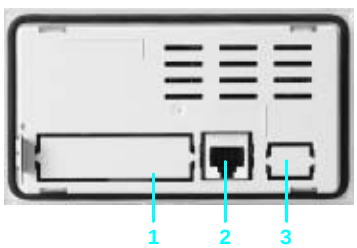
XBT N compact display units comprise:

On the front panel



1 A communication monitoring indicator light (XBT N401).
2 A back-lit LCD display.
3 Two control or contextual link keys, non configurable.
4 An “Alarm” indicator light (XBT N401).
5 Six service keys, 4 of which (framed) are configurable as function keys and fitted with 2 indicator lights (XBT N401).
6 A customisable “entry” legend.
7 A customisable “control” legend F1, F2, F3, F4.
8 A customisable blank legend.

On the rear



1 A 25-way SUB-D type serial link (XBT N401).
2 An RJ 45 serial link (XBT N200 and XBT N400).
3 A plug-in screw terminal block for ⎓ 24 V power supply (XBT N401).

Characteristics:
page 1/10

References:
page.1/11

Dimensions:
page 1/46

Operator dialogue terminals
Magelis compact display units

Type of display unit			XBT N200	XBT N400	XBT N401	XBT NU400
Environment						
Conforming to standards			IEC 61131-2, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA C22-2 n° 14			
Product certifications			CE, UL, CSA, class 1 Div 2 (UL and CSA)			
Ambient air temperature	For operation	**°C**	0…+ 55			
	For storage	**°C**	- 20…+ 60			
Maximum relative humidity		**%**	0…85 (without condensation)			
Degree of protection	Front panel		IP 65, conforming to IEC 60529, Nema 4X (“**outdoor use**”)			
	Rear panel		IP 20, conforming to IEC 60529			
Shock resistance			Conforming to IEC 60068-2-27; semi-sinusoidal pulse 11 ms, 15 gn on the 3 axes			
Vibration resistance			Conforming to IEC 60068-2-6 and marine certification; ± 3.5 mm; 2…8.45 Hz; 1 gn 8.75…150 Hz			
E.S.D.			Conforming to IEC 61000-4-2, level 3			
Electromagnetic interference			Conforming to IEC 61000-4-3, 10 V/m			
Electrical interference			Conforming to IEC 61000-4-4, level 3			
Mechanical characteristics						
Mounting and fixing			Flush mounted, fixed by 2 spring clips (included), pressure mounted for 1.5 to 6 mm thick panels			
Material	Screen protection		Polyester			
	Front frame		Polycarbonate/Polybutylene Terephthalate			
	Keypad		Polyester			
Keys			8 keys (6 configurable and 4 with changeable legends)			
Electrical characteristics						
Power supply	Voltage		⎓ 5 V via PLC terminal port		⎓ 24 V	
	Voltage limits		–		⎓ 18…30 V	
	Ripple	**%**	–		5 maximum	
Consumption			–		5 W max.	
Operating characteristics						
Display	Type		Green back-lit LCD	Green back-lit LCD (122 x 32 pixels)	Green, orange or red back-lit LCD (122 x 32 pixels)	Green back-lit LCD (122 x 32 pixels)
	Capacity (height x width)		2 lines of 20 characters (5.55 x 3.2 mm)	From 1 line of 5 characters (17.36 x 11.8 mm) to 4 lines of 20 characters (4.34 x 2.95 mm)		
Signalling			–	–	4 LEDs	–
Dialogue application	Number of pages		128 application pages (2 lines/page max.)	200 application pages (25 lines/page max.) 256 alarm pages (25 lines/page max.)		
Memory			512 Kb Flash			
Transmission	Asynchronous serial link		RS 232 C/RS 485			
Downloadable protocols			Uni-Telway, Modbus			Modbus
Real-time clock			Access to the PLC real-time clock			
Connection	Power supply		By the PLC terminal port connecting cable (XBT Z978)		Plug-in terminal block, 3 screw terminals (pitched at 5.08 mm) Maximum clamping capacity: 1.5 mm^2	
	Serial port – Connector		Female RJ 45 (RS 232 C/RS 485)		25-way SUB-D type	
	Serial port – Connection		Point-to-point		Multidrop	
	Printer port		No		Mini-DIN (for future use)	No

Presentation:
pages 1/8 and 1/9

Dimensions:
page 1/46

Operator dialogue terminals
Magelis compact display units

XBT N200

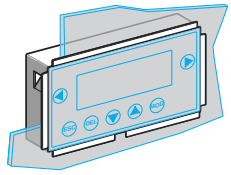
XBT N401

Magelis compact display units

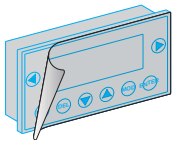
Downloadable exchange protocol	Compatible PLCs	Supply voltage	Reference	Weight kg
Display unit with 2 lines of 20 characters (with alphanumeric screen)				
Uni-Telway, Modbus	Twido, Nano, Micro, Premium	⎓ 5 V via PLC terminal port	**XBT N200**	0.360
Display units with 4 lines of 20 characters (with matrix screen)				
Uni-Telway, Modbus	Twido, Nano, Micro, Premium	⎓ 5 V via PLC terminal port	**XBT N400**	0.360
	Twido *(1)*, Nano, Micro, Premium, TSX series 7, Momentum, Quantum Other Modus slave equipment	⎓ 24 V external supply	**XBT N401**	0.380
Modbus	TeSys model U motor starters *(2)* Altivar drives	⎓ 24 V external supply	**XBT NU400**	0.380

Software

Description	Operating system	Reference	
Configuration software	Windows 98, 2000 or XP	See page 3/7	–



XBT ZN01



XBT ZN02

XBT Z978

Accessories *(3)*

Description	Description	For use with	Reference	Weight kg
Accessory for flush mounting	Kit for applications requiring a higher degree of protection or customisation of the console, using a flat metal strip (not included)	All XBT N	**XBT ZN01**	–
Protective sheets	10 peel off sheets	All XBT N	**XBT ZN02**	–
Sheets of changeable legends	10 sheets of 6 legends	XBT N200/400	**XBL YN00**	–
		XBT N401/NU400	**XBL YN01**	–

Cables and connection accessories *(4)*

Description	Compatibility	Type of connector	Physical link	Protocol	Length m	Reference	Weight kg
Cable for Twido, Nano, Micro and Premium PLCs	XBT N●00	RJ 45 Mini-DIN	RS 485	Modbus, Uni-Telway	2.5	**XBT Z978**	0.180

Documentation

Description	Format		Reference *(5)*	Weight kg
Magelis range user's manual	A5	To order separately to the XBT L100●M CD-ROM	**XBT X000●●**	0.700

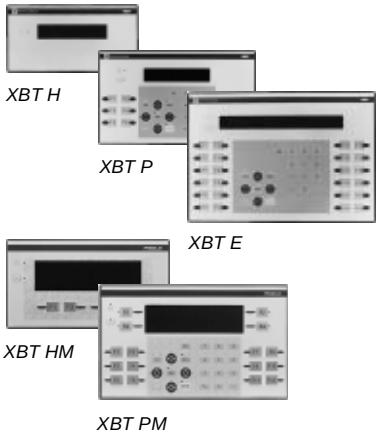
(1) Connection via integrated port or optional serial port on the Twido PLC.
(2) Factory preloaded application for monitoring, diagnostics and adjustment of 1 to 8 TeSys model U motor starters.
(3) For other accessories, see pages 1/40 and 1/41.
(4) For other cables and connection accessories, see page 1/41.
*(5) Add the following suffix to the reference: **EN** for English, **FR** for French, **DE** for German, **ES** for Spanish, **1T** for Italian.*

Presentation: pages 1/8 and 1/9
Dimensions: page 1/46

Operator dialogue terminals

Magelis display units and terminals
with alphanumeric screen and with matrix screen

Presentation



XBT H/P/E display units and terminals with alphanumeric screen are used to represent messages and variables.
Various keys can be used:
- to modify variables,
- to control the device,
- to browse in a dialogue application.

For models which have a printer output, the display units and terminals can also be used to print alarm messages and print-out form pages.

XBT HM/PM terminals with matrix screen can also be used to display bitmap images and animated bar chart and gauge objects.

Operation

All Magelis display units and terminals with alphanumeric and matrix screen have the same ergonomic user interface:
- function keys,
- service keys,
- numeric or alphanumeric keys.

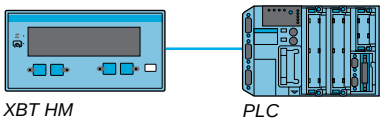
Configuration

Magelis display units and terminals can be configured using the same XBT L1003 software in a Windows environment.

For terminals with alphanumeric screen, XBT L1003 software uses the concept of pages: each page can be viewed in its entirety.
A 2 or 4-line window, depending on the model, simulates what will appear on the product screen.

For XBT HM/PM terminals with matrix screen, XBT L1003 software offers up to 8 lines of 40 characters, and animated bar chart and gauge objects.

Communication



XBT H/P/E/HM/PM terminals communicate with PLCs via an integrated point-to-point or multidrop serial link.

The communication protocols used are those of Schneider Electric PLCs, as well as those of the other major manufacturers on the market.

XBT H/P/HM/PM terminals also communicate on the AS-Interface cabling system bus using the 22.5 pitched module.

Characteristics:
pages 1/14, 1/18, 1/20 and 1/16

References:
pages 1/15, 1/19, 1/21 and 1/17

Dimensions:
page 1/46

Operator dialogue terminals
Magelis display units and terminals with alphanumeric screen and with matrix screen

Functions

XBT H/P/E/HM/PM display units and terminals have (depending on the model) function keys and service keys on the front panel.

Function keys

Function keys are defined for the whole application. They can be used for:
- accessing a page,
- latching memory bits,
- toggling memory bits (ON/OFF).

Service keys

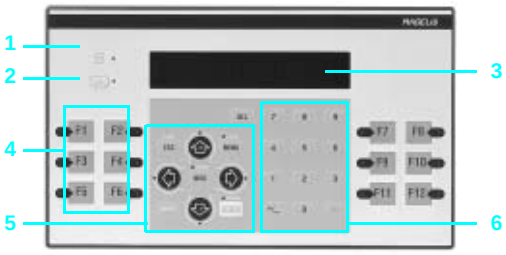
Services keys are the “arrow keys” and the control keys combined, and are used for modifying the parameters of the automated system.
The control keys are used to perform the following actions:

ENTER Confirm a selection or entry, acknowledge an alarm.
MOD Change to the mode for entering pages, passwords, fields or graphic objects.
ESC Cancel an entry, suspend or stop a current action.
SHIFT Access the second of the dual key functions.
MENU Access a menu containing the operating functions.
HOME Return to the entry point of the current menu.
Example: return to the first page of the application.
SYST Access the confidential mode which contains the setup functions.
ALARM View the alarms.
PRINT Print.

The “arrow” keys are used to:
- change page within a menu,
- move within a page,
- select the value of a digit,
- select a value from a list of choices,
- increment or decrement the value of a variable field, when used with the **SHIFT** key.

Description

XBT H/P/E/HM/PM display units and terminals comprise:



On the front panel

1 A communication monitoring indicator light.
2 A keypad activity indicator light (depending on model).
3 Fluorescent or back-lit LCD display.
4 Function keys with indicator light and changeable legends.
5 Service keys with indicator light.
6 Twelve numeric keys (for XBT-P02●●●●)
Twelve alphanumeric keys (0…9, +/-, .) associated with 3 alphabetical access keys (A…Z) for XBT E.

On the rear

1 A plug-in screw terminal block for ⎓ 24 V power supply and a connection for the alarm relay (depending on model).
2 A 25-way female SUB-D connector for connection to PLCs, FT2100 configuration terminals or PC compatibles.
3 A 9-way male SUB-D connector for the printer connection (depending on model).

Characteristics:
pages 1/14, 1/18, 1/20 and 1/16

References:
pages 1/15, 1/19, 1/21 and 1/17

Dimensions:
page 1/46

Operator dialogue terminals
Magelis display units
with 2-line alphanumeric screen

Type of display unit		XBT H0●2●10			XBT H811050	XBT H0●1010		
Environment								
Conforming to standards		IEC 61131-2, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA C22-2 n° 14						
Product certifications		CE, UL, CSA						
Temperature	Operation	0…+ 50 °C						
	Storage	- 40…+ 70 °C			- 20…+ 60 °C			
Degree of protection		IP 65, conforming to IEC 60529, Nema 4						
Vibration		Conforming to IEC 60068-2-6; 2…11.2 Hz at 1 mm; 11.2…150 Hz, 1 gn for 3 hours per axis						
Mechanical characteristics								
Mounting and fixing		Flush mounted, fixed by 4 or 6 locking clips (included), pressure mounted (on 1 to 6 mm thick panel)						
Material	Enclosure	Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)						
	Keypad, screen protection	Anti-UV treated toughened polyester (Autoflex EB AG)						
	XBT H	**002010**	**022010**	**012●10**	**811050**	**001010**	**021010**	**011010**
Keys	Function keys	No keys	4	No keys	No keys	No keys	4	No keys
	Service keys	No keys	1	5	5	No keys	1	5
Electrical characteristics								
Display	Type	Fluorescent green matrix characters (5 x 7 pixels)			LCD (5 x 7 pixels)	Back-lit LCD (5 x 7 pixels)		
	Capacity	2 lines of 20 characters, height 5 mm			2 lines of 20 characters, height 9 mm	2 lines of 20 characters, height 9 mm		
Power supply	Voltage	⎓ 24 V non isolated			⎓ 24 V non isolated (during configuration) ⎓ 5 V via Nano/Micro/ Premium PLC terminal port (during operation)	⎓ 24 V non isolated		
	Voltage limits	18…30 V						
	Ripple	5% maximum						
Consumption		10 W			1.5 W	10 W		
Operating characteristics								
	XBT H	**002010**	**022010**	**012●10**	**811050**	**001010**	**021010**	**011010**
Signalling		1 LED	6 LEDs	4 LEDs	–	1 LED	6 LEDs	4 LEDs
Memory		128 Kb Flash EPROM, (256 Kb for **XBT H012●10**) 200 application pages approx. (2 lines/page max.) 256 available alarm pages (2 lines/page max.) 256 print-out form pages for **XBT H012110**			128 Kb Flash EPROM 100 application pages approx. (2 lines/page max.) 128 available alarm pages (2 lines/page max.)	128 Kb Flash EPROM, (256 Kb for **XBT H011010**) 200 application pages approx. (2 lines/page max.) 256 available alarm pages (2 lines/page max.)		
Log function		Possibility of storing alarm pages (**XBT H012110**) for print-out			–	–		
Transmission (asynchronous serial link)		RS 232 C/RS 485/RS 422			RS 232 C/RS 485	RS 232 C/RS 485/RS 422		
Downloadable protocol		Multiple			Uni-Telway	Multiple		
		See pages 1/12 and 1/40						
Real-time clock		Access to the PLC real-time clock						
Printer link (asynchronous serial link)		RS 232 C (**XBT H012110**)			–	–		
Connection	Power supply	Plug-in terminal block 3 screw terminals (pitched at 5.08 mm) Maximum clamping capacity: 1.5 mm^2						
	Serial port	25-way female SUB-D connector						
	Printer port	9-way male SUB-D connector			–	–		

References: page 1/15
Dimensions, mounting: page 1/46

Operator dialogue terminals

Magelis display units
with 2-line alphanumeric screen

802907

XBT H00●010

802905

XBT H02●010

802906

XBT H01●●10

Display units with 2 lines of 20 characters (fluorescent)

Downloadable exchange protocol	Number of keys: Function	Service	Numeric	Supply voltage V ⎓	Language version	Reference	Weight kg
Without printer port, without log							
See page 1/40	–	–	–	24	Multilingual	**XBT H002010**	0.600
	4	1	–	24	Multilingual	**XBT H022010**	0.600
	–	5	–	24	Multilingual	**XBT H012010**	0.600
With printer port, with log							
See page 1/40	–	5	–	24	Multilingual	**XBT H012110**	0.600

Display units with 2 lines of 20 characters (LCD)

Without printer port, without log							
Modbus, Uni-Telway See page 1/40	–	5	–	24 and 5 via terminal port on the Twido/ Nano/Micro/ Premium PLC	Multilingual	**XBT H811050**	0.600

Display units with 2 lines of 20 characters (back-lit LCD)

Without printer port, without log							
See page 1/40	–	–	–	24	Multilingual	**XBT H001010**	0.600
	4	1	–	24	Multilingual	**XBT H021010**	0.600
	–	5	–	24	Multilingual	**XBT H011010**	0.600

Separate parts

Description	Usage	Reference	Weight kg
Development software	Under Windows 98, 2000 or XP, for downloading the application and protocols	See page 3/7	–
Connecting cables	Connection to PLCs, configuration terminals, etc.	See page 1/41	–

Documentation

Description	Format		Reference *(1)*	Weight kg
Magelis user's manual	A5 bound	To order separately to the XBT L100●M CD-ROM	**XBT X000●●**	0.700

*(1) Add the following suffix to the reference: **EN** for English, **FR** for French, **DE** for German, **ES** for Spanish, **1T** for Italian.*

Characteristics: page 1/14

Dimensions, mounting: page 1/46

Operator dialogue terminals
Magelis display units and terminals with 8-line matrix screen

Type of display unit and terminal		XBT HM0●7●10	XBT PM027●10
Environment			
Conforming to standards		IEC 61131-2, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA C22-2 n° 14	
Product certifications		CE, UL, CSA	CE, UL Class 1, Div 2. Group A, B, C, D-T5, CSA Class 1, Div 2. Group A, B, C, D-T5
Temperature	Operation	0…+ 50 °C	
	Storage	- 20…+ 60 °C	
Degree of protection		IP 65, conforming to IEC 60529, Nema 4	
Vibration		Conforming to IEC 60068-2-6; 2 to 11.2 Hz at 1 mm; 11.2 to 150 Hz, 1 gn for 3 hours per axis	
Mechanical characteristics			
Mounting and fixing		Flush mounted, fixed by 6 spring clips (included), pressure mounted (on 1.6 to 6 mm thick panel)	
Material	Enclosure	Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)	
	Keypad	Anti-UV treated toughened polyester (Autoflex EB AG)	
	Screen protection	Glass, 3 mm thick	

	XBT	HM007010	HM027010	HM017●10	PM027●10
Keys	Function keys	–	4	–	12
	Service keys	–	1	5	10
	Numeric keys	–	–	–	12
	Dynamic function keys		–	–	4

Electrical characteristics					
Display	Type	Back-lit LCD (240 x 64 pixels)			
	Capacity	8 lines of 40 characters (height 5.3 mm) single height, 4 lines of 20 characters (height 10.6 mm) double height, double width			
Power supply	Voltage	⎓ 24 V non isolated			
	Voltage limits	18…30 V			
	Ripple	5% maximum			
Consumption		15 W			

	XBT	HM007010	HM027010	HM017●10	PM027●10
Operating characteristics					
Signalling		1 LED	6 LEDs	4 LEDs	21 LEDs
Memory		384 Kb Flash EPROM 600 application pages approx. (8 lines per page max.) 256 available alarm pages (8 lines per page max.) 256 print-out form pages (**XBT HM017110** only)			512 Kb Flash EPROM 800 application pages approx. (8 lines per page max.) 256 available alarm pages (8 lines per page max.) 256 print-out form pages (**XBT PM027110** only)
Log function		Possibility of storing alarm pages (**XBT HM017110** and **XBT PM027110**) for print-out			
Transmission (asynchronous serial link)		RS 232 C/RS 485/RS 422			
Downloadable protocol		Multiple (see pages 1/12 and 1/40)			
Real-time clock		Access to the PLC real-time clock			
Printer link (asynchronous serial link)		RS 232 C (**XBT HM017110** and **XBT PM027110**)			
Alarm relay		1 N/O contact (min. 1 mA/⎓ 5 V, max. 0.5 A/⎓ 24 V)			
Connection	Power supply	Plug-in terminal block 3 screw terminals (pitched at 5.08 mm) Maximum clamping capacity: 1.5 mm^2			
	Serial port	25-way female SUB-D connector			
	Printer port	9-way male SUB-D connector			

References: page 1/17
Dimensions, mounting: page 1/46

Operator dialogue terminals

Magelis display units and terminals with 8-line matrix screen

802943

XBT HM027010

802942

XBT HM007010

802944

XBT HM017●10

105080

XBT HM017010A8

802945

XBT PM027●10

Display units with 8-line matrix screen of 40 characters (back-lit LCD)

Downloadable exchange protocol	Number of keys: Function	Service	Numeric	Supply voltage V ⎓	Language version	Reference	Weight kg
Without printer port, without log							
See page 1/40	–	–	–	24	Multilingual	**XBT HM007010**	0.600
	4	1	–	24	Multilingual	**XBT HM027010**	0.600
	–	5	–	24	Multilingual	**XBT HM017010**	0.600
With printer port, with log							
See page 1/40	–	5	–	24	Multilingual	**XBT HM017110**	0.600
With printer port, with log							
Modbus	–	5	–	24	Multilingual	**XBT HM017010A8** *(1)*	0.600

Terminals with 8-line matrix screen of 40 characters (back-lit LCD)

Downloadable exchange protocol	Number of keys: Function	Service	Numeric	Dynamic	Supply voltage V ⎓	Language version	Reference	Weight kg
Without printer port, without log								
See page 1/40	12	10	12	4	24	Multilingual	**XBT PM027010**	0.600
With printer port, with log								
See page 1/40	12	10	12	4	24	Multilingual	**XBT PM027110**	0.600

Separate parts

Description	Usage	Reference	Weight kg
Development software	Under Windows 98, 2000 or XP, for downloading the application and protocols	See page 3/7	–
Connecting cables	Connection to PLCs, configuration terminals, etc.	See page 1/41	–

Documentation

Description	Format		Reference *(2)*	Weight kg
Magelis user's manual	A5 bound	To order separately to the XBT L100●M CD-ROM	**XBT X000●●**	0.700

(1) Factory preloaded application for monitoring, diagnostics and adjustment of 1 to 8 ATV 28/ATV 58 drives. Display unit supplied with XBT Z908 connecting cable.
*(2) Add the following suffix to the reference: **EN** for English, **FR** for French, **DE** for German, **ES** for Spanish, **1T** for Italian.*

Characteristics: page 1/16
Dimensions, mounting: page 1/46

Operator dialogue terminals
Magelis terminals
with 2-line alphanumeric screen

Type of terminal		XBT P0●2●10	XBT P0●1●10
Environment			
Conforming to standards		IEC 61131-2, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA C22-2 n° 14	
Product certifications		CE, UL, CSA	
Temperature	Operation	0…+ 50 °C	
	Storage	- 40…+ 70 °C	- 20…+ 60 °C
Degree of protection		IP 65, conforming to IEC 60529, Nema 4	
Vibration		Conforming to IEC 60068-2-6; 2 to 11.2 Hz at 1 mm; 11.2 to 150 Hz, 1 gn for 3 hours per axis	
Mechanical characteristics			
Mounting and fixing		Flush mounted, fixed by 4 or 6 locking clips (included), pressure mounted (on 1 to 6 mm thick panel)	
Material	Enclosure	Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)	
	Keypad, screen protection	Anti-UV treated toughened polyester (Autoflex EB AG)	

	XBT P	012010	022●10	011010	021●10
Keys	Function keys	8	12	8	12
	Service keys	9	10	9	10
	Numeric keys	–	12	–	12

Electrical characteristics			
Display	Type	Fluorescent green matrix characters (5 x 7 pixels)	Back-lit LCD (5 x 7 pixels)
	Capacity	2 lines of 20 characters, height 5 mm	2 lines of 20 characters, height 9 mm
Power supply	Voltage	⎓ 24 V non isolated	
	Voltage limits	18…30 V	
	Ripple	5% maximum	
Consumption		10 W	

	XBT P	012010	022●10	011010	021●10
Operating characteristics					
Signalling		17 LEDs	21 LEDs	17 LEDs	21 LEDs
Memory		256 Kb Flash EPROM 400 application pages approximately (25 lines per page max.) 256 available alarm pages (25 lines per page max.) 256 print-out form pages (**XBT P02●110** only)			
Log function		Possibility of storing alarm pages (**XBT P022110**)		Possibility of storing alarm pages (**XBT P021110**)	
Transmission (asynchronous serial link)		RS 232 C/RS 485/RS 422			
Downloadable protocol		Multiple (see pages 1/12 and 1/40)			
Real-time clock		Access to the PLC real-time clock			
Printer link (asynchronous serial link)		RS 232 C (**XBT P022110**)		RS 232 C (**XBT P021110**)	
Connection	Power supply	Plug-in terminal block 3 screw terminals (pitched at 5.08 mm) Maximum clamping capacity: 1.5 mm^2			
	Serial port	25-way female SUB-D connector			
	Printer port	9-way male SUB-D connector			

References: page 1/19
Dimensions, mounting: page 1/46

Operator dialogue terminals
Magelis terminals
with 2-line alphanumeric screen

802908

XBT P01●010

802908

XBT P02●●10

Terminals with 2-line display of 20 characters (fluorescent)

Downloadable exchange protocol	Number of keys: Function	Service	Numeric	Supply voltage V ⎓	Language version	Reference	Weight kg
Without printer port, without log							
See page 1/40	8	9	–	24	Multilingual	**XBT P012010**	0.800
	12	10	12	24	Multilingual	**XBT P022010**	0.800
With printer port, with log							
See page 1/40	12	10	12	24	Multilingual	**XBT P022110**	0.800

Terminals with 2-line display of 20 characters (back-lit LCD)

Without printer port, without log							
See page 1/40	8	9	–	24	Multilingual	**XBT P011010**	0.800
	12	10	12	24	Multilingual	**XBT P021010**	0.800
With printer port, with log							
See page 1/40	12	10	12	24	Multilingual	**XBT P021110**	0.800

Separate parts

Description	Usage	Reference	Weight kg
Development software	Under Windows 98, 2000 or XP, for downloading the application and protocols	See page 3/7	–
Connecting cables	Connection to PLCs, configuration terminals, etc.	See page 1/41	–

Documentation

Description	Format		Reference *(3)*	Weight kg
Magelis user's manual	A5 bound	To order separately to the XBT L100●M CD-ROM	**XBT X000●●**	0.700

*(1) Add the following suffix to the reference: **EN** for English, **FR** for French, **DE** for German, **ES** for Spanish, **1T** for Italian.*

Characteristics: page 1/18
Dimensions, mounting: page 1/46

Operator dialogue terminals
Magelis terminals
with 2 or 4-line alphanumeric screen

Type of terminal		XBT E014●10/XBT E016●10	XBT E013●10/XBT E015●10
Environment			
Conforming to standards		IEC 61131-2, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA C22-2 n° 14	
Product certifications		CE, UL, CSA	
Temperature	Operation	0…+ 50 °C	
	Storage	- 40…+ 70 °C	- 20…+ 60 °C
Degree of protection		IP 65, conforming to IEC 60529, Nema 4	
Vibration		Conforming to IEC 60068-2-6; 2 to 11.2 Hz at 1 mm; 11.2 to 150 Hz, 1 gn for 3 hours per axis	
Mechanical characteristics			
Mounting and fixing		Flush mounted, fixed by 4 or 6 locking clips (included), pressure mounted (on 1 to 6 mm thick panel)	
Material	Enclosure	Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)	
	Keypad, screen protection	Anti-UV treated toughened polyester (Autoflex EB AG)	
Keys	Function keys	24	
	Service keys	10	
	Alphanumeric keys	12	
Electrical characteristics			
	XBT E	**014●10** / **E016●10**	**013●10** / **015●10**
Display	Type	Fluorescent green matrix characters (5 x 7 pixels)	Back-lit LCD (5 x 7 pixels)
	Capacity	2 lines of 40 characters, height 5 mm / 4 lines of 40 characters, height 5 mm	2 lines of 40 characters, height 5 mm / 4 lines of 40 characters, height 5 mm
Power supply	Voltage	⎓ 24 V non isolated	
	Voltage limits	18…30 V	
	Ripple	5% maximum	
Consumption		20 W	10 W
Operating characteristics			
Signalling		33 LEDs, 1 buzzer (taking into account operation of keys)	
Memory		384 Kb Flash EPROM 800 application pages approximately (25 lines per page max.) 256 available alarm pages (25 lines per page max.) 256 print-out form pages (**XBT E01●110** only)	
Log function		Possibility of storing alarm pages	
Transmission (asynchronous serial link)		RS 232 C/RS 485/RS 422	
Downloadable protocol		Multiple (see pages 1/12 and 1/40)	
Real-time clock		Built-in	
Printer link (asynchronous serial link)		RS 232 C (**XBT E014110/XBT E016110**)	RS 232 C (**XBT E013110/XBT E015110**)
Alarm relay		1 N/O contact (min. 1 mA/⎓ 5 V, max. 0.5 A/⎓ 24 V)	
Connection	Power supply and alarm relay	Plug-in terminal block 5 screw terminals (pitched at 5.08 mm) Maximum clamping capacity: 1.5 mm^2	
	Serial port	25-way female SUB-D connector	
	Printer port	9-way male SUB-D connector	

References: page 1/21
Dimensions, mounting: page 1/46

Operator dialogue terminals
Magelis terminals
with 2 or 4-line alphanumeric screen

802910

XBT E014●10

Terminals with 2-line display of 40 characters (fluorescent)

Downloadable exchange protocol	Number of keys: Function	Service	Alphanumeric	Supply voltage V ⎓	Language version	Reference	Weight kg
Without printer port, without log							
See page 1/40	24	10	12	24	Multilingual	**XBT E014010**	1.000
With printer port, with log							
See page 1/40	24	10	12	24	Multilingual	**XBT E014110**	1.000

802911

XBT E016●10

Terminals with 4-line display of 40 characters (fluorescent)

Without printer port, without log							
See page 1/40	24	10	12	24	Multilingual	**XBT E016010**	1.000
With printer port, with log							
See page 1/40	24	10	12	24	Multilingual	**XBT E016110**	1.000

802912

XBT E013●10

Terminals with 2-line display of 40 characters (back-lit LCD)

Without printer port, without log							
See page 1/40	24	10	12	24	Multilingual	**XBT E013010**	1.000
With printer port, with log							
See page 1/40	24	10	12	24	Multilingual	**XBT E013110**	1.000

802913

XBT E015●10

Terminals with 4-line display of 40 characters (back-lit LCD)

Without printer port, without log							
See page 1/40	24	10	12	24	Multilingual	**XBT E015010**	1.000
With printer port, with log							
See page 1/40	24	10	12	24	Multilingual	**XBT E015110**	1.000

Separate parts

Description	Usage	Reference	Weight kg
Development software	Under Windows 98, 2000 or XP, for downloading the application and protocols	See page 3/7	–
Connecting cables	Connection to PLCs, configuration terminals, etc.	See page 1/41	–

Documentation

Description	Format		Reference *(1)*	Weight kg
Magelis user's manual	A5 bound	To order separately to the XBT L100●M CD-ROM	**XBT X000●●**	0.700

*(1) Add the following suffix to the reference: **EN** for English, **FR** for French, **DE** for German, **ES** for Spanish, **1T** for Italian.*

Characteristics: page 1/20

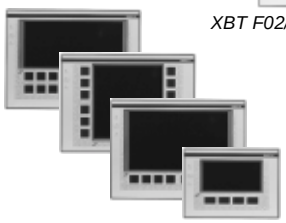
Dimensions, mounting: page 1/46

Operator dialogue terminals
Magelis graphic terminals

Presentation

XBT F01/F03

XBT F02/F03


XBT FC02/04/06/08

Magelis operator dialogue terminals with graphic screen are available with 5.7" or 10.4" monochrome or colour screen, with a keypad, a touch-sensitive screen or a touch-sensitive screen and keys.
XBT F graphic terminals are specially designed for graphic operator dialogue functions.

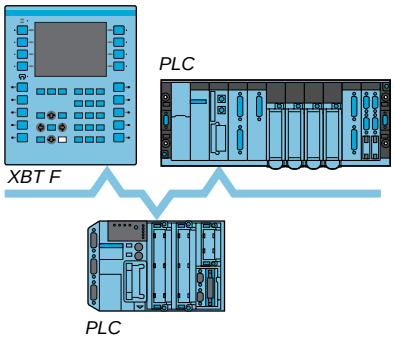
Operation

All Magelis graphic terminals have the same ergonomic user interface:
- static and dynamic function keys,
- service keys,
- alphanumeric keys,
- touch-sensitive keys.

Configuration

Magelis graphic terminals can be configured using the same XBT L1003 software in a Windows environment.
For both graphic terminals and stations, the XBT L1003 software provides a library of animated graphic objects such as bar charts, gauges, selectors, potentiometers and trending curves.
A library of bitmap symbols is also available with XBT L1003 software.
The variable for animating an object can be selected directly from a list of symbols given by the PL7 or Concept software.
The application programme for the graphic terminals and stations is stored on a PCMCIA memory card.

Communication



XBT F graphic terminals communicate with PLCs via an integrated point-to-point or multidrop serial link, or via a fieldbus using a type III PCMCIA card.
The communication protocols used are those of Schneider Electric PLCs, as well as those of the other major manufacturers on the market.
XBT F (10.4'') graphic terminals can also be connected to an Ethernet TCP/IP network.

Characteristics: page 1/26
References: page 1/27
Dimensions: page 1/47

Operator dialogue terminals
Magelis graphic terminals

Functions

XBT F graphic terminals have the following functions:
- display of animated synoptic screens, control, modification of numeric and alphanumeric variables,
- display of a service line (status and alarm bar) with the current time,
- dynamic visualisation of operating data (settings, measurements, recipes, maintenance messages) and process errors,
- control via dynamic or static function keys,
- scaling of analogue variables,
- real-time and trending curves,
- alarm log and management of alarm groups,
- management of help pages, form pages, recipe pages,
- pages can be called up by the user or by the PLC,
- three levels of password,
- printing of form pages, date and time stamped log and alarms,
- communication protocol application support in the type II PCMCIA application memory card.

The role of the function keys is defined using the XBT L1003 software. Modifications cannot be made during operation.
Each function key can be associated with an internal bit of the PLC application.

Static function keys

Static function keys are defined for the whole application.

They can be used for:
- accessing a page,
- setting latching memory bits,
- toggling memory bits (ON/OFF).

Static keys can be marked with changeable legends.

Dynamic function and touch-sensitive keys

Dynamic function and touch-sensitive keys are associated with a page. Their role can therefore differ from one page to another.

They can be used for:
- accessing a page,
- setting latching memory bits,
- toggling memory bits (ON/OFF),
- access to the modification of a value,
- direct writing.

Each dynamic key and touch-sensitive key can be assigned a label or icon illustrating its function.
On touch-sensitive terminals, the touch-sensitive zones function in a similar way to the dynamic keys on keypad terminals.

Characteristics: page 1/26
References: page 1/27
Dimensions: page 1/47

Functions (continued)

Service keys

Service keys are the “arrow” keys and the control keys combined, and are used for modifying the parameters of the automated system.

The control keys are used to perform the following actions:

ENTER Confirm a selection or entry, acknowledge an alarm.

MOD Change to the mode for entering pages, password, fields or graphic objects.

ESC Cancel an entry, suspend or stop a current action. Successively display previous pages. Quit the alarm display.

SHIFT Access the second of the dual key functions.

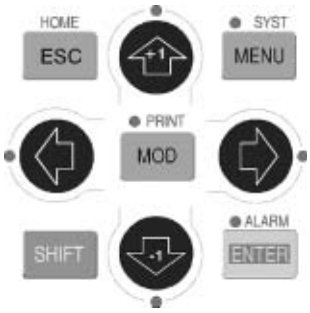
MENU Access to a menu containing the operating functions which do not have direct access keys.

HOME Return to the entry point of the current menu.
Example: return to the first page of the application.

SYST Access the confidential mode which contains the password protected setup functions.

ALARM View the alarms.

PRINT Print.



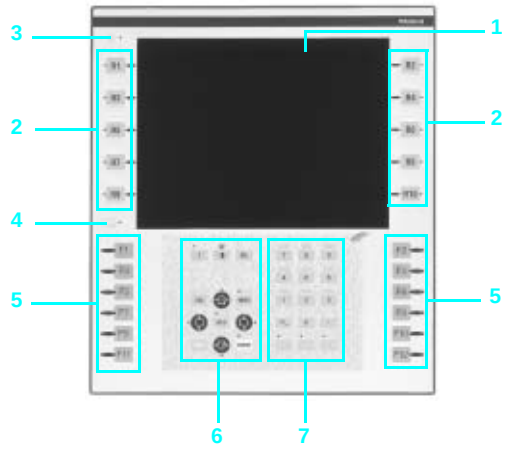
The “arrow” keys are used to:
- change page within a menu,
- change fields on a page,
- select an object on a page,
- move within a page,
- select the value of a digit,
- select a value from a list of choices,
- increment or decrement the value of a variable field,

when used with the **SHIFT** key.

Operator dialogue terminals
Magelis graphic stations

Front panel of graphic terminals

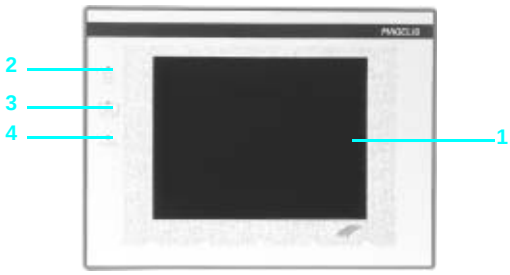
Graphic terminals with keypad, XBT F01/F02



XBT F01/F02 keypad terminals have the following on the front panel:

1 A monochrome or colour screen (5.7", 9.5" or 10.4" depending on model).
2 2 x 4 or 2 x 5 (depending on model) dynamic function keys with indicator lights.
3 A communication monitoring indicator light.
4 A keypad activity indicator light.
5 2 x 5 or 2 x 6 (depending on model) static function keys with indicator lights and changeable legends.
6 Twelve service keys with indicator lights.
7 Twelve alphanumeric keys (0…9, +/-, .) associated with 3 alphabetical access keys (A…Z).

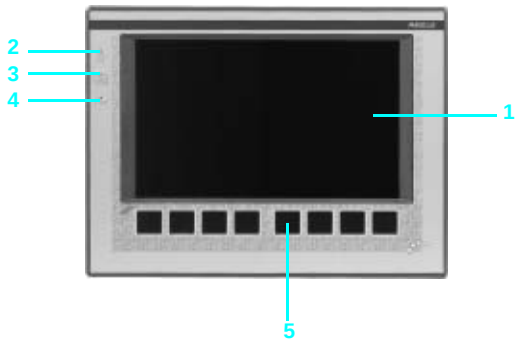
Graphic terminals with touch-sensitive screen, XBT F03



XBT F03 touch-sensitive screen terminals have the following on the front panel:

1 A touch-sensitive colour screen (5.7" or 10.4" depending on model).
2 A communication monitoring indicator light.
3 A tactile feedback activity indicator light.
4 An alarm indicator light.

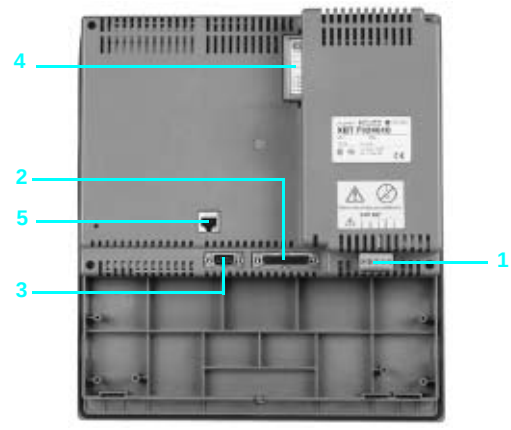
Graphic terminals with touch-sensitive screen, XBT FC



XBT FC touch-sensitive screen terminals have the following on the front panel:

1 A touch-sensitive colour screen (5.7" or 10.4" depending on model).
2 A communication monitoring indicator light.
3 A tactile feedback activity indicator light.
4 An alarm indicator light.
5 4, 8, 12 or 16 touch-sensitive keys (depending on model).

Rear panel of graphic terminals XBT F



XBT F graphic terminals have the following on the rear panel:

1 A plug-in screw terminal block for ⎓ 24 V power supply and a connection for the alarm relay.
2 A 25-way female SUB-D connector for connection to PLCs.
3 A 9-way male SUB-D connector for printer connection and for transferring applications from an FT2100 terminal or PC compatibles.
4 Two slots for PCMCIA card:
- one type II for application memory support,
- one type III for connection to the communication architecture (bus or network).
5 An RJ 45 connector for connection to the Ethernet TCP/IP network (depending on model).

Characteristics: page 1/26
References: page 1/27
Dimensions: page 1/47

Operator dialogue terminals

Magelis 5" graphic terminals
with keypad or touch-sensitive screen

Type of terminal		XBT F011	XBT F032
Environment			
Conforming to standards		IEC 61131-2, IEC 61000-4-2 level 3, IEC 61000-4-3 and IEC 61000-4-4 level 3, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA	
Product certifications		CE, UL class 1 Div 2. Group A, B, C, D-T4A, CSA class 1 Div 2. Group A, B, C, D-T4A	
Temperature	Operation	0…+ 45 °C	
	Storage	- 20…+ 60 °C	
Relative humidity		0…85% (without condensation)	
Degree of protection	Front panel	IP 65, conforming to IEC 60529, Nema 4	
	Rear panel	IP 20, conforming to IEC 60529	
Shock resistance		Conforming to IEC 60068-2-27; semi-sinusoidal pulse 11 ms, 15 gn on the 3 axes	
Vibration		Conforming to IEC 60068-2-6; 10 to 57 Hz at 0.075 mm; 57 to 150 Hz, 1 gn for 3 hours per axis	
E.S.D.		Conforming to IEC 61000-4-2, level 3	
Electromagnetic interference		Conforming to IEC 61000-4-3, 10 V/m	
Electrical interference		Conforming to IEC 61000-4-4, level 3	
Mechanical characteristics			
Mounting and fixing		Flush mounted, fixed by spring clips (included), pressure mounted (on 1.6 to 6 mm thick panel)	
		10 spring clips	8 spring clips
Material	Screen protection	Glass, 3 mm thick	Glass, 1.8 mm thick + polyester, 0.2 mm thick
	Front frame	Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)	
	Keypad	Anti-UV treated toughened polyester (Autoflex EB AG)	
	Enclosure	Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)	
Keys	Dynamic keys	8 (with LED)	–
	Static keys	10 (with LED and changeable legends)	–
	Service keys	12	–
	Alphanumeric keys	12 + 3 for alphabetical access	–
Electrical characteristics			
LCD screen	Type	5.7" monochrome, back-lit with 16 levels of grey	5.7" STN 256 colours, back-lit with resistive matrix tactile feedback (8 x 6 cells)
	Definition	320 x 240 pixels	
	Luminescence (cd/m²)	130	180
Optimum viewing angle (degrees)	Vertical top	20	35
	Vertical bottom	20	60
	Vertical right	30	50
	Vertical left	30	50
Power supply	Voltage	⎓ 24 V non isolated	
	Limits	18…30 V, including 5% maximum ripple, 1 ms maximum microbreaks	
	Protection	Against polarity inversion and overloads	
Consumption		35 W	
Operating characteristics			
Signalling		1 communication monitoring LED and 1 keypad activity (or tactile feedback activity) LED and 11 LEDs associated with service and alphanumeric keys	
Operating system/Processor		Magelis/80386	
Dynamic RAM memory		2.5 Mb	
Application memory		On type II PCMCIA card: 8 Mb (included), or 16 Mb	
Dialogue application	Maximum number of pages	50 to 450 application, alarm, help, form and recipe pages depending on the memory card used (512 alarms max., 256 form max.)	
	Curves	16 real-time curves	
	Recipes	5000 parameter values max., in a maximum of 125 recipe records	
Connections	PLC/configuration PC	19200 baud RS 232 C/RS 422/485 isolated serial link, downloadable communication protocols (see page 1/22 and page 1/40)	
	Printer	RS 232 C serial link	
	Bus or network	Slot for type III PCMCIA communication card depending on model, communication protocols (see page 1/40)	
Real-time clock		Access to the PLC real-time clock	
Alarm relay		1 volt-free N/O contact, max. 0.5 A ⎓/∿ 24 V	
Connection	Power supply and alarm relay	Plug-in terminal block, 5 screw terminals (pitched at 5.08 mm). Maximum clamping capacity: 1.5 mm²	
	PLC	25-way female SUB-D connector	
	Printer/configuration PC	9-way male SUB-D connector	

References: page 1/27
Dimensions: page 1/47

Operator dialogue terminals

Magelis 5" graphic terminals
with keypad or touch-sensitive screen

XBT F011●10

Graphic terminals with keypad

Downloadable exchange protocol	Screen type and size	Supply voltage V ⎓	Type III slot for PCMCIA communication card	Reference	Weight kg
See page 1/40	Monochrome 5.7"	24	No	**XBT F011110**	1.800
			Yes	**XBT F011310**	1.800

XBT F032●10

Graphic terminals with touch-sensitive screen

Downloadable exchange protocol	Screen type and size	Supply voltage V ⎓	Type III slot for PCMCIA communication card	Reference	Weight kg
See page 1/40	Colour 5.7"	24	No	**XBT F032110**	1.600
			Yes	**XBT F032310**	1.600

Separate parts

Description	Usage	Reference	Weight kg
Development software	Under Windows 98, 2000 or XP, for downloading the application and protocols	See page 3/7	–
Connecting cables	Connection to PLCs, configuration terminals, etc.	See page 1/41	–

Documentation

Description	Format		Reference *(1)*	Weight kg
Magelis user's manual	A5 bound	To order separately to the XBT L100●M CD-ROM	**XBT X000●●**	0.700

*(1) Add the following suffix to the reference: **EN** for English, **FR** for French, **DE** for German, **ES** for Spanish, **1T** for Italian.*

Characteristics: page 1/26
Dimensions: page 1/47

Operator dialogue terminals

Magelis 5" or 10" graphic terminals with touch-sensitive screen and keys

Type of terminal		XBT FC	022310	044510/044610	084510/084610	064510/064610
Environment						
Conforming to standards			IEC 61131-2, IEC 61000-4-2 level 3, IEC 61000-4-3 and IEC 61000-4-4 level 3, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA			
Product certifications			CE, UL, CSA	CE, UL Class 1, Div 2. Group A, B, C, D-T4A, CSA Class 1, Div 2. Group A, B, C, D-T4A		
Temperature	Operation		0…+ 45 °C			
	Storage		- 20…+ 60 °C			
Relative humidity			0…85% (without condensation)			
Degree of protection	Front panel		IP 65, conforming to IEC 529, Nema 4			
	Rear panel		IP 20, conforming to IEC 529			
Shock resistance			Conforming to IEC 60068-2-27; semi-sinusoidal pulse 11 ms, 15 gn on the 3 axes			
Vibration			Conforming to IEC 60068-2-6; 10 to 57 Hz at 0.075 mm; 57 to 150 Hz, 1 gn for 3 hours per axis			
E.S.D.			Conforming to IEC 61000-4-2, level 3			
Electromagnetic interference			Conforming to IEC 61000-4-3, 10 V/m			
Electrical interference			Conforming to IEC 61000-4-4, level 3			
Mechanical characteristics						
Mounting and fixing			Flush mounted, fixed by spring clips (included), pressure mounted (on 1.6 to 6 mm thick panel)			
			8 spring clips	10 spring clips		
Material	Screen protection		Glass, 1.8 mm thick + polyester, 0.2 mm thick			
	Front frame		Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)			
	Keypad		Anti-UV treated toughened polyester (Autoflex EB AG)			
	Enclosure		Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)			
Touch-sensitive keys			4 in 1 row	8 in 1 row	16 in 2 rows	12 in 2 columns
Electrical characteristics						
LCD screen	Type		5.7" STN 256 colours, back-lit with resistive matrix tactile feedback (8 x 4 cells)	10.4" TFT 256 colours with resistive matrix tactile feedback (13 x 8 cells)	10.4" TFT 256 colours with resistive matrix tactile feedback (13 x 6 cells)	10.4" TFT 256 colours with resistive matrix tactile feedback (9 x 10 cells)
	Definition		320 x 240 pixels	640 x 480 pixels		
	Luminescence (cd/m²)		180	250	250	250
Optimum viewing angle (degrees)	Vertical top		35	80	80	80
	Vertical bottom		60	80	80	80
	Vertical right		50	80	80	80
	Vertical left		50	80	80	80
Power supply	Voltage		⎓ 24 V non isolated			
	Limits		18…30 V, including 5% maximum ripple, 1 ms maximum microbreaks			
	Protection		Against polarity inversion and overloads			
Consumption			35 W			
Operating characteristics						
Signalling			1 communication monitoring LED, 1 keypad activity LED and 1 alarm LED			
Operating system/Processor			Magelis/80386	Magelis/Pentium		
Dynamic RAM memory			2.5 Mb	32 Mb		
Application memory			On type II PCMCIA card: 8 Mb (included), or 16 Mb			
Dialogue application	Maximum number of pages		50 to 450	30 to 300		
	Type of pages		Application, alarm, help, form and recipe pages depending on the memory card used (512 alarms max., 256 form max.)			
	Curves		16 real-time curves			
	Recipes		5000 parameter values max., in a maximum of 125 recipe records			
Connections	PLC/configuration PC		19200 baud RS 232 C/RS 422/485 isolated serial link, downloadable communication protocols (see pages 1/22 and 1/40)	115200 baud RS 232 C/RS 422/485 isolated serial link, downloadable communication protocols (see pages 1/22 and 1/40)		
	Printer		RS 232 C serial link			
	Bus or network		Slot for type III PCMCIA communication card, communication protocols (see page 1/40). Ethernet 10/100 TCP/IP RJ 45 connector depending on model			
Real-time clock			Access to the PLC real-time clock	Built-in and backed-up		
Alarm relay			1 volt-free N/O contact, max. 0.5 A ⎓/∿ 24 V			
Connection	Power supply and alarm relay		Plug-in terminal block, 5 screw terminals (pitched at 5.08 mm) Maximum clamping capacity: 1.5 mm²			
	PLC		25-way female SUB-D connector			
	Printer/configuration PC		9-way male SUB-D connector			

References: page 1/29

Dimensions: page 1/47

Operator dialogue terminals

Magelis 5" or 10" graphic terminals with touch-sensitive screen and keys

811955

XBT FC022310

802992

XBT FC044510

802994

XBT FC084510

802993

XBT FC064510

Graphic terminals with touch-sensitive screen and keys

Downloadable exchange protocol	Screen type and size	Supply voltage V ⎓	Number of touch-sensitive keys	Ethernet 10/100 TCP/IP RJ 45 connector	Reference	Weight kg
See page 1/40	Colour 5.7"	24	4	No	**XBT FC022310**	1.600
	Colour 10.4"	24	8	No	**XBT FC044510**	2.400
				Yes	**XBT FC044610**	2.400
			16	No	**XBT FC084510**	2.400
				Yes	**XBT FC084610**	2.400
			12	No	**XBT FC064510**	2.400
				Yes	**XBT FC064610**	2.400

Separate parts

Description	Usage	Reference	Weight kg
Development software	Under Windows 98, 2000 or XP, for downloading the application and protocols	See page 3/7	–
Connecting cables	Connection to PLCs, configuration terminals, etc.	See page 1/41	–

Documentation

Description	Format		Reference *(1)*	Weight kg
Magelis user's manual	A5 bound	To order separately to the XBT L100●M CD-ROM	**XBT X000●●**	0.700

*(1) Add the following suffix to the reference: **EN** for English, **FR** for French, **DE** for German, **ES** for Spanish, **1T** for Italian.*

Characteristics: page 1/28

Dimensions: page 1/47

Operator dialogue terminals

Magelis 10" graphic terminals
with keypad or touch-sensitive screen

Type of terminal		XBT F023110/23310	XBT F024110	XBT F024510/24610	XBT F034110	XBT F034510/34610
Environment						
Conforming to standards		IEC 61131-2, IEC 61000-4-2 level 3, IEC 61000-4-3 and IEC 61000-4-4 level 3, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA				
Product certifications		CE, UL, CSA	CE, UL Class 1, Div 2. Group A, B, C, D-T4A, CSA Class 1, Div 2. Group A, B, C, D-T4A			
Temperature	Operation	0…+ 45 °C				
	Storage	- 20…+ 60 °C				
Relative humidity		0…85% (without condensation)				
Degree of protection	Front panel	IP 65, conforming to IEC 60529, Nema 4				
	Rear panel	IP 20, conforming to IEC 60529				
Shock resistance		Conforming to IEC 60068-2-27; semi-sinusoidal pulse 11 ms, 15 gn on the 3 axes				
Vibration		Conforming to IEC 60068-2-6; 10 to 57 Hz at 0.075 mm; 57 to 150 Hz, 1 gn for 3 hours per axis				
E.S.D.		Conforming to IEC 61000-4-2, level 3				
Electromagnetic interference		Conforming to IEC 61000-4-3, 10 V/m				
Electrical interference		Conforming to IEC 61000-4-4, level 3				
Mechanical characteristics						
Mounting and fixing		Flush mounted, fixed by spring clips (included), pressure mounted (on 1.6 to 6 mm thick panel)				
		12 spring clips			10 spring clips	
Material	Screen protection	Glass, 3 mm thick			Glass, 1.8 mm thick + polyester, 0.2 mm thick	
	Front frame	Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)				
	Keypad	Anti-UV treated toughened polyester (Autoflex EB AG)				
	Enclosure	Polyphenyl oxide, 10% glass fibre (PPO GFN1 SE1)				
Keys	Dynamic keys	10 (with LED)			–	
	Static keys	12 (with LED and changeable legends)			–	
	Service keys	12			–	
	Alphanumeric keys	12 + 3 for alphabetical access			–	
Electrical characteristics						
LCD screen	Type	9.5" monochrome, back-lit with 16 levels of grey	10.4" TFT 256 colours		10.4" TFT 256 colours with resistive matrix tactile feedback (13 x 10 cells)	
	Definition	640 x 480 pixels				
	Luminescence (cd/m²)	150	200	250	200	250
Optimum viewing angle (degrees)	Vertical top	20	30	80	30	80
	Vertical bottom	10	20	80	20	80
	Vertical right	30	45	80	45	80
	Vertical left	30	45	80	45	80
Power supply	Voltage	⎓ 24 V non isolated				
	Limits	18…30 V, including 5% maximum ripple, 1 ms maximum microbreaks				
	Protection	Against polarity inversion and overloads				
Consumption		35 W				
Operating characteristics						
Signalling		1 communication monitoring LED and 1 keypad activity (or tactile feedback activity) LED and 11 LEDs associated with service and alphanumeric keys				
Operating system/Processor		Magelis/80386		Magelis/Pentium	Magelis/80386	Magelis/Pentium
Dynamic RAM memory		2.5 Mb	2.5 Mb	32 Mb	2.5 Mb	32 Mb
Application memory		On type II PCMCIA card: 8 Mb (included), or 16 Mb				
Dialogue application	Maximum number of pages	30 to 300 application, alarm, help, form and recipe pages depending on the memory card used (512 alarms max., 256 form max.)				
	Curves	16 real-time curves				
	Recipes	5000 parameter values max., in a maximum of 125 recipe records				
Connections	PLC/configuration PC	19200 baud RS 232 C/RS 422/485 isolated serial link		115200 baud RS 232 C/RS 422/485 isolated serial link	19200 baud RS 232 C/RS 422/485 isolated serial link	115200 baud RS 232 C/RS 422/485 isolated serial link
		Downloadable communication protocols (see page 1/22 and page 1/40)				
	Printer	RS 232 C serial link				
	Bus or network	Depending on model: slot for type III PCMCIA communication card, communication protocols (see page 1/40), Ethernet 10/100 TCP/IP RJ 45 connector				
Real-time clock		Access to the PLC real-time clock		Built-in and backed-up	Access to the PLC real-time clock	Built-in and backed-up
Alarm relay		1 volt-free N/O contact, max. 0.5 A ⎓/∿ 24 V				
Connection	Power supply and alarm relay	Plug-in terminal block, 5 screw terminals (pitched at 5.08 mm). Maximum clamping capacity: 1.5 mm²				
	PLC	25-way female SUB-D connector				
	Printer/configuration PC	9-way male SUB-D connector				

References: page 1/31
Dimensions: page 1/47

Operator dialogue terminals
Magelis 10" graphic terminals
with keypad or touch-sensitive screen

802963

XBT F024●10

Graphic terminals with keypad

Downloadable exchange protocol	Screen type and size	Supply voltage V ⎓	Type III slot for PCMCIA communication card	Ethernet 10/100 TCP/IP RJ 45 connector	Reference	Weight kg
See page 1/40	Monochrome 9.5"	24	No	No	**XBT F023110**	2.700
			Yes	No	**XBT F023310**	2.700
	Colour 10.4"	24	No	No	**XBT F024110**	2.700
			Yes	No	**XBT F024510**	2.700
			Yes	Yes	**XBT F024610**	2.700

802964

XBT F034●10

Graphic terminals with touch-sensitive screen

Downloadable exchange protocol	Screen type and size	Supply voltage V ⎓	Type III slot for PCMCIA communication card	Ethernet 10/100 TCP/IP RJ 45 connector	Reference	Weight kg
See page 1/40	Colour 10.4"	24	No	No	**XBT F034110**	2.400
			Yes	No	**XBT F034510**	2.400
			Yes	Yes	**XBT F034610**	2.400

Separate parts

Description	Usage	Reference	Weight kg
Development software	Under Windows 98, 2000 or XP, for downloading the application and protocols	See page 3/7	–
Connecting cables	Connection to PLCs, configuration terminals, etc.	See page 1/41	–

Documentation

Description	Format		Reference *(1)*	Weight kg
Magelis user's manual	A5 bound	To order separately to the XBT L100●M CD-ROM	**XBT X000●●**	0.700

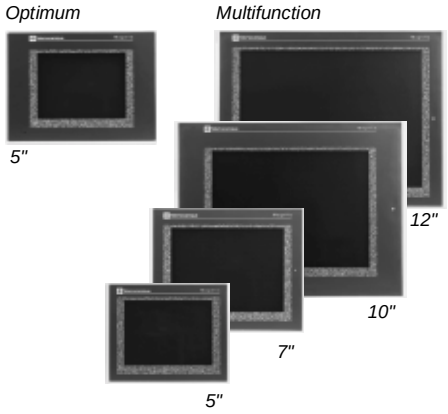
*(1) Add the following suffix to the reference: **EN** for English, **FR** for French, **DE** for German, **ES** for Spanish, **1T** for Italian.*

Characteristics: page 1/30
Dimensions: page 1/47

Operator dialogue terminals

New Technology Magelis touch-sensitive graphic terminals

Presentation



The New Technology Magelis graphic terminals XBT G are touch-sensitive products with a wide choice of screen sizes (5", 7", 10" and 12") as well as different versions (monochrome, colour).

- An Optimum 5" monochrome terminal for simple applications.
- A range comprising 9 multifunction terminals from 5" to 12" for applications requiring more functions.

Operation

All Magelis XBT G model terminals feature the new information and communication technologies:

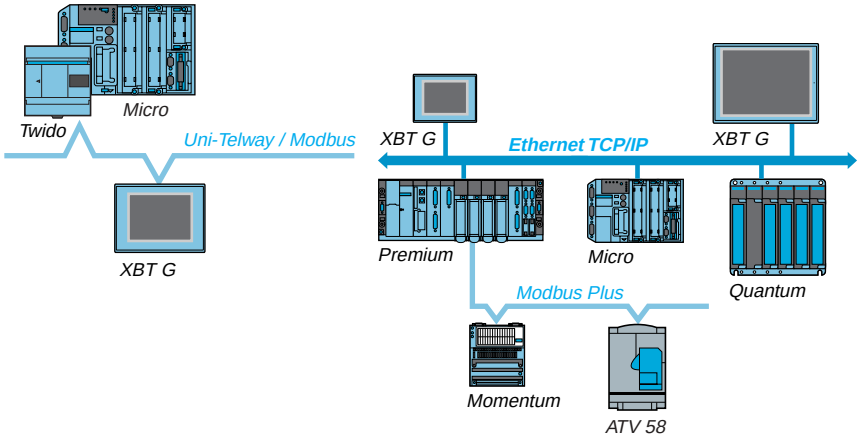
- High level of communication (on-board Ethernet, multi-line).
- External support of data (“Compact Flash” card) for storage of production information and saving of applications.
- Multimedia data with integrated management of image and sound.

Configuration

XBT G terminals can be configured using the Vijeo Designer VJD SPUL software, in a Windows environment.
The evolutive ergonomics of the Vijeo Designer VJD SPUL software, designed around several parameterable windows, enables quick and simple development of a project:

- Navigator,
- Object properties,
- Object listing,
- Library of animated graphic objects,
- Information,
- Report.

Communication



XBT G terminals communicate with PLCs via one or two integrated serial links, using Schneider Electric communication protocols (Uni-Telway, Modbus).

The Magelis multifunction terminals can be connected on Ethernet using Modbus TCP/IP protocol.

Operator dialogue terminals

New Technology Magelis touch-sensitive graphic terminals

Functions

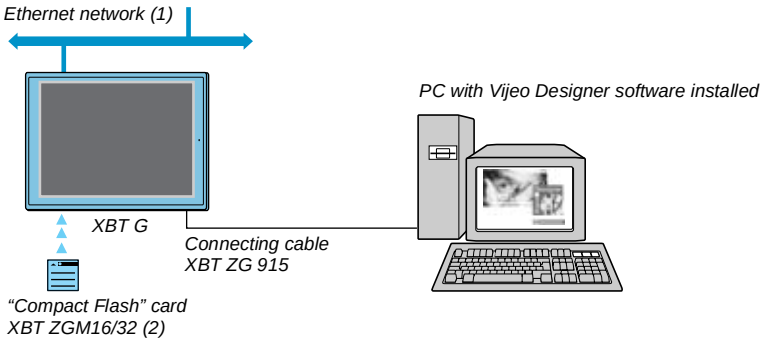
XBT G graphic terminals offer the following functions:

- Display of animated synoptic screens with 8 types of animation:
  - pressing touch-sensitive zone,
  - changing of colour,
  - filling,
  - movement,
  - rotation,
  - size,
  - visibility,
  - value display.
- Control, modification of numeric and alphanumeric variables.
- Display of date and time.
- Real-time and trending curves with log.
- Alarm display, alarm log and management of alarm groups.
- Multiwindow management.
- Pages can be called up by the user.
- Multilingual application management.
- Data processing via Java script.
- Application and log support in the “Compact Flash” format external application memory card.
- Management of sound messages.

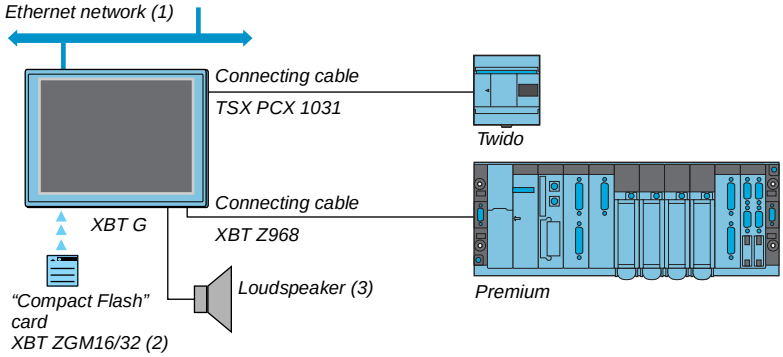
Operating structure of graphic terminals

The following diagrams indicate the equipment that can be connected to XBT G terminals according to their operating mode.

Editing mode



Operating mode

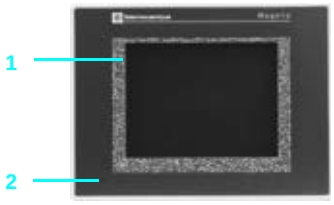


(1) Connection not possible for XBT G2110, G2120, G2220 and G4320.
(2) Not available for XBT G2110.
(3) Not available for XBT G2110, G2120, G2130, G2220, G2330 and G4320.

Operator dialogue terminals
New Technology Magelis touch-sensitive graphic terminals

Description

Optimum graphic terminal XBT G2110



It has the following on the front panel:

1 A touch-sensitive message display screen (blue mode 5.7" monochrome),
2 A back-lighting control light.

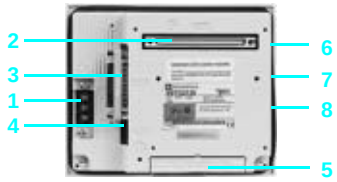
And on the rear panel:

1 A screw terminal block for ⎓ 24 V power supply.
2 A 25-way female SUB-D connector for RS 232 C or RS 485 serial link to PLCs (COM 1).
3 A connector for application transfer cable.

Multifunction graphic terminals XBT G2120, G2220, G2130 and G2330

They have the following on the front panel:

1 A touch-sensitive message display screen (5.7" monochrome or colour),
2 A back-lighting control light.



And on the rear panel:

1 A screw terminal block for ⎓ 24 V power supply.
2 An extension unit interface (for future use).
3 A 25-way female SUB-D connector for RS 232 C or RS 485 serial link to PLCs (COM 1).
4 A connector for application transfer cable.
5 A slot for “Compact Flash” card, with cover.

On XBT G2130 and G2330 only

6 A 9-way SUB-D serial extension connector (COM 2).
7 A centronics type printer connector (for future use).
8 An RJ 45 type connector for Ethernet (10 BaseT) link.

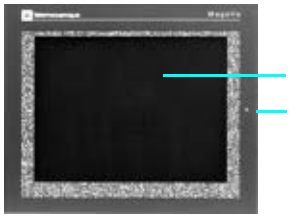
Characteristics: pages 1/36 and 1/38
References: pages 1/37 and 1/39
Dimensions: page 1/47

Operator dialogue terminals
New Technology Magelis touch-sensitive graphic terminals

Description

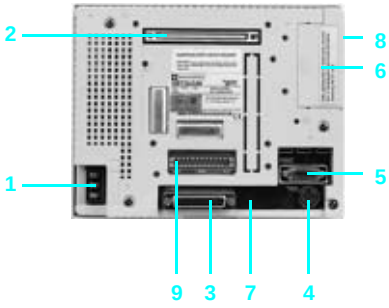
Multifunction graphic terminals XBT G4320, G4330

They have the following on the front panel:



1 A touch-sensitive message display screen (7.4" colour),
2 A back-lighting control light.

And on the rear panel:



1 A screw terminal block for ⎓ 24 V power supply.
2 An extension unit interface (for future use).
3 A 25-way female SUB-D connector for RS 232 C or RS 485 serial link to PLCs (COM 1).
4 A connector for application transfer cable.
5 A centronics type printer connector (for future use).
6 A slot for “Compact Flash” card, with cover.

On XBT G4330 only

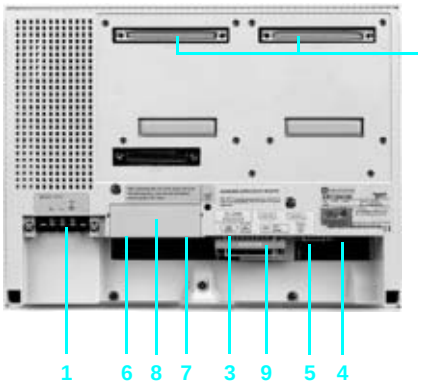
7 A 9-way SUB-D serial extension connector (COM 2) (for future use).
8 An RJ 45 type connector for Ethernet (10baseT) link.
9 An input/output terminal block for loudspeaker connection.

Multifunction graphic terminals XBT G5230, G5330 and G6330

They have the following on the front panel:

1 A touch-sensitive message display screen (10.4" or 12.1" colour),
2 A back-lighting control light.

And on the rear panel:



1 A screw terminal block for ⎓ 24 V power supply.
2 Two extension unit interfaces, 1 and 2 (only one on XBT G5230) (for future use).
3 A 25-way female SUB-D connector for RS 232 C or RS 485 serial link to PLCs (COM 1).
4 A connector for application transfer cable.
5 A 9-way SUB-D serial extension connector (COM 2) (for future use).
6 A centronics type printer connector (for future use).
7 An RJ 45 type connector for Ethernet (10baseT) link.
8 A slot for “Compact Flash” card, with cover.
9 An input/output terminal block for loudspeaker connection.

Operator dialogue terminals

New Technology Magelis touch-sensitive graphic terminals, 5" screen

Type of terminal			XBT G2110	XBT G2120	XBT G2130	XBT G2220	XBT G2330
Environment							
Conforming to standards			EN 61131-2, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA C22-2 n°14				
Product certifications			CE, UL, CSA, Class 1 Div 2 T4A (UL and CSA)				
Temperature	Operation		0…50 °C				
	Storage		- 20…+ 60 °C				
Relative humidity			0…85% (without condensation)	0…90% (without condensation)			
Altitude			< 2000 m				
Degree of protection	Front panel		IP 65 conforming to IEC 60529, Nema 4X				
	Rear panel		IP 20 conforming to IEC 60529				
Shock resistance			Conforming to IEC 60068-2-27; semi-sinusoidal pulse 11 ms, 15 gn on the 3 axes				
Vibration			Conforming to IEC 60068-2-6; 10 to 57 Hz at 0.075 mm; 57 to 150 Hz, 1 gn for 3 hours per axis				
E.S.D.			Conforming to IEC 61000-4-2, level 3				
Electromagnetic interference			Conforming to IEC 61000-4-3, 10 V/m				
Electrical interference			Conforming to IEC 61000-4-4, level 3				
Mechanical characteristics							
Mounting and fixing			Flush mounted, fixed by 6 screw clamps (included), on 1.6…10 mm thick panel				
Material	Enclosure		Polycarbonate / polyethylene terephthalate	Aluminium			
Electrical characteristics							
Power supply	Voltage		⎓ 24 V				
	Limits		⎓ 20.4…27.6 V	⎓ 19.2…28.8 V			
	Voltage cut		⩽ 2 ms	⩽ 10 ms			
Inrush current			⩽ 30 A				
Consumption			20 W	22 W			
Operating characteristics							
LCD screen	Type		Back-lit monochrome STN			Colour STN	Colour TFT
	Colour		Blue and white	Black and white		64 colours	256 colours, 64 if flashing
	Definition		320 x 240 pixels (QVGA)				
	Size (width x height in mm)		5.7" (115.2 x 86.4)				
	Touch-sensitive zone		Resistive film, 16 x 12 cells				
	Back-lighting (service life)		25,000 hours at 25 °C	50,000 hours at 25 °C for continual usage			
	Settings	Brightness	–	4 levels via tactile feedback			
		Contrast	8 levels via tactile feedback		–	8 levels via tactile feedback	–
	Character fonts		ASCII, Japanese (ANK, Kanji), Chinese (simplified Chinese), Taiwanese (traditional Chinese), Korean				
Dialogue application	Max. number of pages		Limited by the internal Flash memory capacity or “Compact Flash” card memory capacity				
Signalling			1 LED: green for normal operation, orange if back-lighting faulty				
Operating system/Processor			Magelis/CPU 100 MHz RISC				
Memory	Application		4 Mb Flash EPROM		6 Mb Flash EPROM	4 Mb Flash EPROM	6 Mb Flash EPROM
	Back-up of data		128 Kb SRAM (lithium batteries)			256 Kb SRAM (lithium batteries)	
Protocols			Modbus, Uni-Telway		Modbus, Uni-Telway, Modbus TCP/IP	Modbus, Uni-Telway	Modbus, Uni-Telway, Modbus TCP/IP
Real-time clock			Built-in real-time clock				
Connection	Power supply		Screw terminal block: 3 terminals, tightening torque 0.5 Nm				
	Com 1 serial port		25-way SUB-D connector (RS 232 C/RS 485 serial link)				
	Com 2 serial port		–		9-way SUB-D connector (RS 232 C serial link)	–	9-way SUB-D connector (RS 232 C serial link)
	Printer port		–		For future use	–	For future use
	Network (protocol)		–		Ethernet, IEEE 802.3 10 BaseT, RJ 45	–	Ethernet, IEEE 802.3 10 BaseT, RJ 45
	Application downloading		Via Mini-DIN socket				
	Extension 1		–	For future use			
	Extension 2		–				
	“Compact Flash” card		–	1 slot for “Compact Flash” card			
	Input/output terminal block		–				

Presentation: page 1/32 References: page 1/37 Dimensions: page 1/47

Operator dialogue terminals

New Technology Magelis touch-sensitive graphic terminals, 5" screen

XBT G2110

XBT G2120

XBT ZGM16

Graphic terminals *(1)*

Type of screen	On-board Ethernet	Number of serial ports	Application memory capacity	"Compact Flash" card slot	Reference	Weight kg
Optimum 5.7"						
Monochrome blue mode STN	No	1	4 Mb	No	**XBT G2110**	1.600
Multifunction 5.7"						
Monochrome black and white STN	No	1	4 Mb	Yes	**XBT G2120**	1.400
	Yes	2	6 Mb	Yes	**XBT G2130**	1.400
Colour STN	No	1	4 Mb	Yes	**XBT G2220**	1.400
Colour TFT	Yes	2	6 Mb	Yes	**XBT G2330**	1.400

Separate parts

Description	Compatibility	Size	Reference	Weight kg
"Compact Flash" memory cards	XBT G2120/G2130/G2220/G2330	16 Mb	**XBT ZGM16**	0.050
		32 Mb	**XBT ZGM32**	0.050
Adaptor for "Compact Flash" cards	PC with PCMCIA card reader		**XBT ZGADT**	0.050
Protective sheets	XBT G2110		**XBT ZG31**	0.200
	XBT G2120/G2130/G2220/G2330		**XBT ZG32**	0.200

Spare parts

Description	For use with	Reference	Weight kg
Seals	XBT G2110	**XBT ZG21**	0.030
	XBT G2120/G2130/G2220/G2330	**XBT ZG22**	0.030
Back-lighting lamp	XBT G2120/G2130/G2220	**XBT ZG12**	0.150
Fixing kit: 4 clamps and screws (max. tightening torque: 0.5 Nm) Included with all XBT G terminals	All XBT G	**XBT ZGSET**	0.100
Extension connector protection	XBT G2120/G2130/G2220/G2330	**XBT ZGCOV**	0.030

Connection cables and accessories *(2)*

Description	Usage		Type of connector	Physical link	Reference	Weight kg
	From	To				
Transfer cable	PC	All XBT G	SUB-D 9 / Mini-DIN	TTL	**XBT ZG915**	0.250
Cable adaptor Included with all XBT G terminals	All XBT G	Cables XBT Z9●●●	SUB-D 25 / SUB-D 25	RS 485	**XBT ZG999**	0.030
PLC connection cable	Twido, Nano, Micro, Premium	All XBT G (COM 2)	Mini-DIN / SUB-D 9	RS 232	**TSX PCX 1031**	0.250

Documentation

Description	Composition	Support	Reference *(3)*	Weight kg
Technical documentation set	2 multilingual volumes: Vijeo Designer educational software, Setting-up Terminals XBT G	Paper (also included in pdf format on software CD-ROM)	**VJD USE 000V10●**	–

(1) Supplied with cable adaptor for connection to PLCs, service instructions and fixing kit. Configuration software, separate parts and connection accessories, see page 3/7.

(2) For other connection cables, see pages 1/40 and 1/41.

*(3) Add the following suffix to the reference: **E** for English, **F** for French, **G** for German, **1T** for Italian, **S** for Spanish.*

Operator dialogue terminals

New Technology Magelis touch-sensitive graphic terminals, 7", 10" or 12" screen

Type of terminal			XBT G4320	XBT G4330	XBT G5230	XBT G5330	XBT G6330
Environment							
Conforming to standards			EN 61131-2, IEC 60068-2-6, IEC 60068-2-27, UL 508, CSA C22-2 n°14				
Product certifications			CE, UL, CSA, Class 1 Div 2 T4A (UL and CSA)				
Temperature	Operation		0…50 °C				
	Storage		- 20…+ 60 °C				
Relative humidity			10…90% (without condensation)				
Altitude			< 2000 m				
Degree of protection	Front panel		IP 65 conforming to IEC 60529, Nema 4X				
	Rear panel		IP 20 conforming to IEC 60529				
Shock resistance			Conforming to IEC 60068-2-27; semi-sinusoidal pulse 11 ms, 15 gn on the 3 axes				
Vibration			Conforming to IEC 60068-2-6; 10 to 57 Hz at 0.075 mm; 57 to 150 Hz, 1 gn for 3 hours per axis				
E.S.D.			Conforming to IEC 61000-4-2, level 3				
Electromagnetic interference			Conforming to IEC 61000-4-3, 10 V/m				
Electrical interference			Conforming to IEC 61000-4-4, level 3				
Mechanical characteristics							
Mounting and fixing			Flush mounted, fixed by 6 screw clamps (included), on 1.6…10 mm thick panel				
Material	Enclosure		Polycarbonate / polyethylene terephthalate				
Electrical characteristics							
Power supply	Voltage		⎓ 24 V				
	Limits		⎓ 19.2…28.8 V				
	Voltage cut		⩽ 10 ms				
Inrush current			⩽ 30 A				
Consumption			28 W		50 W		
Operating characteristics							
LCD screen	Type		Colour TFT		Colour STN	Colour TFT	
	Colour		256 colours, 64 if flashing		64 colours	256 colours, 64 if flashing	
	Definition		640 x 480 pixels (VGA)				800 x 600 pixels (SVGA)
	Size (width x height in mm)		7.4" (149.8 x 112.3)		10.4" (211.2 x 158.4)		12.1" (246 x 184.5)
	Touch-sensitive zone		Resistive film, 32 x 24 cells				Resistive film, 40 x 30 cells
	Back-lighting (service life)		50,000 hours at 25 °C for continual usage				
	Settings	Brightness	4 levels via tactile feedback				
		Contrast	–		8 levels via tactile feedback	–	
	Character fonts		ASCII, Japanese (ANK, Kanji), Chinese (simplified Chinese), Taiwanese (traditional Chinese), Korean				
Dialogue application	Max. number of pages		Limited by the internal Flash memory capacity or “Compact Flash” card memory capacity				
Signalling			1 LED: green for normal operation, orange if back-lighting faulty				
Operating system/Processor			Magelis/CPU 100 MHz RISC				
Memory	Application		6 Mb Flash EPROM	8 Mb Flash EPROM			
	Back-up of data		128 Kb SRAM (lithium batteries)	512 Kb SRAM (lithium batteries)			
Protocols			Modbus, Uni-Telway	Modbus, Uni-Telway, Modbus TCP/IP			
Real-time clock			Built-in real-time clock				
Connection	Power supply		Screw terminal block: 3 terminals, tightening torque 0.5 Nm				
	Com 1 serial port		25-way SUB-D connector (RS 232 C/RS 485 serial link)				
	Com 2 serial port		–	9-way SUB-D connector (RS 232 C serial link)			
	Printer port		For future use				
	Network (protocol)		–	Ethernet, IEEE 802.3 10 BaseT, RJ 45			
	Application downloading		Via Mini-DIN socket				
	Extension 1		For future use				
	Extension 2		–			For future use	
	“Compact Flash” card		1 slot for “Compact Flash” card				
	Inputs/outputs		–	Connector for loudspeaker			

Presentation: page 1/32 References: page 1/39 Dimensions: page 1/47

Operator dialogue terminals

New Technology Magelis touch-sensitive graphic terminals, 7", 10" or 12" screen

XBT G4320

XBT G5230

XBT G6330

XBT ZGM16

Graphic terminals *(1)*

Type of screen	On-board Ethernet	Number of serial ports	Application memory capacity	"Compact Flash" card slot	Reference	Weight kg
Multifunction 7.4"						
Colour TFT	No	1	6 Mb	Yes	**XBT G4320**	2.600
	Yes	2	8 Mb	Yes	**XBT G4330**	2.600
Multifunction 10.4"						
Colour STN	Yes	2	8 Mb	Yes	**XBT G5230**	4.200
Colour TFT	Yes	2	8 Mb	Yes	**XBT G5330**	4.200
Multifunction 12.1"						
Colour TFT	Yes	2	8 Mb	Yes	**XBT G6330**	4.200

Separate parts

Description	Compatibility	Size	Reference	Weight kg
"Compact Flash" memory cards	XBT G4320/G4330/G5230/G5330/G6330	16 Mb	**XBT ZGM16**	0.050
		32 Mb	**XBT ZGM32**	0.050
Adaptor for "Compact Flash" cards	PC with PCMCIA card reader		**XBT ZGADT**	0.050
Protective sheets	XBT G4320/G4330		**XBT ZG34**	0.200
	XBT G5230/G5330/G6330		**XBT ZG36**	0.200

Spare parts

Description	For use with	Reference	Weight kg
Seals	XBT G4320/G4330	**XBT ZG24**	0.030
	XBT G5230/G5330/G6330	**XBT ZG26**	0.030
Back-lighting lamp	XBT G4320/G4330	**XBT ZG14**	0.200
	XBT G5230	**XBT ZG13**	0.100
	XBT G5330	**XBT ZG15**	0.200
	XBT G6330	**XBT ZG16**	0.200
Fixing kit: 4 clamps and screws (max. tightening torque: 0.5 Nm) Included with all XBT G terminals	All XBT G	**XBT ZGSET**	0.100
Extension connector protection	XBT G4320/G4330/G5230/G5330/G6330	**XBT ZGCOV**	0.030

Connection cables and accessories *(2)*

Description	Usage		Type of connector	Physical link	Reference	Weight kg
	From	To				
Transfer cable	PC	All XBT G	SUB-D 9 / Mini-DIN	TTL	**XBT ZG915**	0.250
Cable adaptor Included with all XBT G terminals	All XBT G	Cables XBT Z9●●●	SUB-D 25 / SUB-D 25	RS 485	**XBT ZG999**	0.030
PLC connection cable	Twido, Nano, Micro, Premium	All XBT G (COM 2)	Mini-DIN / SUB-D 9	RS 232	**TSX PCX 1031**	0.250

Documentation

Description	Composition	Support	Reference *(3)*	Weight kg
Technical documentation set	2 multilingual volumes: Vijeo Designer educational software, Setting-up Terminals XBT G	Paper (also included in pdf format on software CD-ROM)	**VJD USE 000V10●**	–

(1) Supplied with cable adaptor for connection to PLCs, service instructions and fixing kit. Configuration software, separate parts and connection accessories, see page 3/7.
(2) For other connection cables, see pages 1/40 and 1/41.
*(3) Add the following suffix to the reference: **E** for English, **F** for French, **G** for German, **1T** for Italian, **S** for Spanish.*

Operator dialogue terminals
Separate parts

Downloadable Third party protocols

Description	Support	Reference	Weight kg
Selection of Third party downloadable protocols for PLCs	CD-ROM	**XBT L1PROT**	0.100

Content details

PLC brand	Compatibility			Protocol name
	XBT N	XBT H/P/E/HM/PM	XBT F	
Allen Bradley	–	■	■	DF1/DH485
GE Fanuc	–	■	■	SNPX
Omron	–	■	■	Sysmacway
Siemens	–	■	■	AS511, 3964R, PPI, MPI

Communication on bus and networks

Type of protocol	Compatibility	Support	Reference	Weight kg
AS-Interface	XBT H/P/HM	Module pitched at 22.5	**XBT ZA994**	0.300
Modbus Plus	XBT F	Type III PCMCIA	**TSX MBP100**	0.110
Fipio	XBT F	Type III PCMCIA	**TSX FPP 10**	0.110
Fipway	XBT F	Type III PCMCIA	**TSX FPP 20**	0.110

Type II PCMCIA memory card

Size	Compatibility	Approximate number of pages		Reference	Weight kg
		XBT F01	XBT F02/F03		
16 Mb	XBT F *(1)*	720	480	**XBT MEM16**	0.100

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XBT MEM16

Accessories

Type	Compatibility	Sold in lots of	Unit reference	Weight kg
Sheets of changeable legends	XBT H02●010	1	**XBL YH4**	0.100
	XBT P01●010	1	**XBL YP8**	0.100
	XBT P02●●10	1	**XBL YP12**	0.100
	XBT E	1	**XBL YE24**	0.100
	XBT HM	1	**XBL YHM4**	0.100
	XBT F01	1	**XBL YF10**	0.100
	XBT F02	1	**XBL YF12**	0.100
Desk holder	XBT F	2	**XBT Z3001**	0.200
Spring clips	XBT N/HM/PM/F	12	**XBT Z3002**	0.200
	XBT H/P/E	10	**XBT Z3003**	0.200
Power supply connector	XBT N/H/P/E/HM/PM/F	10	**XBT Z3004**	0.200

Connection to PCs and printers

Usage	Compatibility	Connection	Reference	Weight kg
RS 232C PC link (2.5 m)	XBT N401/NU400/H/P/E/HM/PM/F	9-way (male)	**XBT Z915**	0.200
	XBT N200/N400	9-way + Mini-DIN	**XBT Z945**	0.200
Between XBT Z915 cable and XBT F terminal	XBT F	9/25-way	**XBT Z962**	0.100
Serial printer	Any XBT with printer port	9/25-way	**XBT Z936**	0.200

(1) PCMCIA card included with the XBT F terminal.

Operator dialogue terminals
Separate parts

Cables for connecting Magelis terminals to PLCs, motor starters and drives

Type of PLC to be connected	Type of connector	Physical link	Protocol	Length m	Reference	Weight kg
Direct connection of XBT N401/H/P/E/HM/PM/F/G terminals to Telemecanique PLCs						
Twido, Modicon Nano, Modicon TSX Micro, Modicon Premium	8-way female mini-DIN terminal port	RS 485	Uni-Telway (V1/V2) and Modbus	2.5	**XBT Z968**	0.180
				5	**XBT Z9681**	0.340
				2.5 + elbowed connector	**XBT Z9680**	0.170
Modicon Premium with TSX SCY 2160●	25-way female SUB-D	RS 485	Uni-Telway (V1/V2)	2.5	**XBT Z918**	0.230
Modicon Quantum	9-way male SUB-D	RS 232	Modbus	2.5	**XBT Z9710**	0.210
TSX 17	15-way female SUB-D terminal port	RS 485	Uni-Telway (V1)	5	**XBT Z958**	0.240
TSX 17 with TSX SCG 1161	15-way female SUB-D	RS 485	Uni-Telway (V1)	5	**XBT Z928**	0.240
TSX Series 7 model 40 on processor	TSX LES 64/74 cable connector	RS 485	Uni-Telway (V1)	5	**XBT Z948**	0.230
TSX Series 7 model 40 with TSX SCM 21●6	25-way female SUB-D	RS 485	Uni-Telway (V1)	5	**XBT Z918**	0.230
984	9-way male SUB-D	RS 232	Modbus	2.5	**XBT Z9710**	0.210
Modicon Micro Modicon Momentum M1 (Port 1)	RJ 45 male jack	RS 232	Modbus	2.5	**XBT Z9711**	0.210
Modbus/ Ethernet gateway	RJ 45 male jack	RS 232	Modbus	2.5	**XBT Z9713**	0.210
AEG ALU *(1)*	9-way male SUB-D	RS 232	KS	2.5	**XBT Z9712**	0.210
AEG Micro *(1)*	RJ 45 male jack	RS 232	KS	2.5	**XBT Z9711**	0.210
Direct connection of XBT N401/NU400/H/P/E/HM/PM/F terminals to Telemecanique motor starters and drives						
LT6	25-way female SUB-D	RS 232	Modbus	2.5	**XBT 9701**	0.210
TeSys model U, ATV 28/38/58 and ATS 48 drives	RJ 45	RS 485	Modbus	2.5	**XBT Z938**	0.210
Direct connection of XBT H/P/E/HM/PM/F terminals to third party PLCs						
Allen Bradley SLC5	9-way male SUB-D	RS 232	DF1	2.5	**XBT Z9730**	0.210
Allen Bradley PLC5	25-way female SUB-D	RS 232	DF1	2.5	**XBT Z9720**	0.210
Allen Bradley Micro-logix	Micro-logix 1000	RS 232	DF1	2.5	**XBT Z9731**	0.210
			DH485	2.5	**XBT Z9732**	–
GE Fanuc Series 90	15-way male SUB-D	RS 232/422	SNPX	2.5	**XBT Z9750**	0.210
Omron CQM1, CVM1	9-way male SUB-D	RS 232	Sysmacway	2.5	**XBT Z9740**	0.210
Omron CVM1	9-way male SUB-D	RS 422	Sysmacway	2.5	**XBT Z9741**	0.210
Siemens S7	9-way male SUB-D	RS 232	MPI	3.7	**XBT Z979**	0.500
Siemens S7 (PG)	9-way male SUB-D	RS 485	PPI	2.5	**XBT Z9721**	0.210
Siemens S5 CP525	25-way female SUB-D	RS 232	3964(R)	2.5	**XBT Z9720**	0.210
Siemens S5 (PG)	15-way female SUB-D	BC/RS 232 converter	AS511	2.5	**XBT Z939 + XBT Z909** *(2) (3)*	0.215

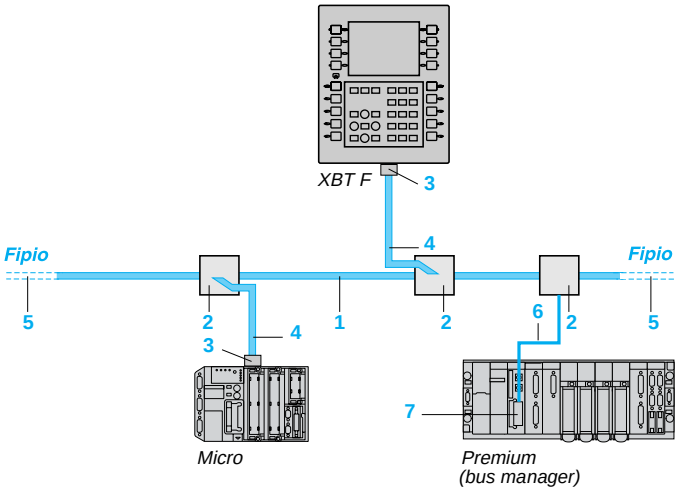
Bus and network connection

Type of bus/network	Tap-off unit	Type of connector	Length m	Reference	Weight kg
AS-Interface	XBT ZA994	–	2.5	**XBT Z9702**	0.200
Uni-Telway	TSX SCA 62 subscriber socket	15-way female SUB-D	1.8	**XBT Z908**	0.240
	TSX P ACC 01 cable connector	8-way female mini-DIN	2.5	**XBT Z968**	0.180
			5	**XBT Z9681**	0.340
Modbus	TSX SCA62 subscriber socket	15-way female SUB-D	1.8	**XBT Z908**	0.240
	Modbus LU9 GC3 8-port splitter box	RJ 45	2.5	**XBT Z938**	0.210
Ethernet	499 NEH●●●●● 499 NES●●●●●	RJ 45	2	**490 NTW 000 02**	–
			5	**490 NTW 000 05**	–
			12	**490 NTW 000 12**	–
			40	**490 NTW 000 40**	–
			80	**490 NTW 000 80**	–
Fipio/Fipway/Modbus Plus	–	–	–	See page 1/43	

(1) All Magelis display units and terminals except XBT N.
*(2) Order 2 cables: **XBT Z939** (operational voltage 5 to 20 Volts) and **XBT Z909**.*
*(3) The BC/RS232 converter **XBT Z939** is only for use with Siemens PLCs.*

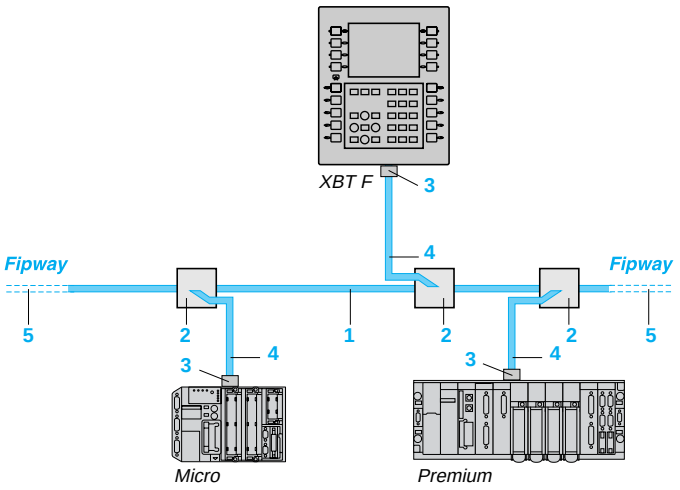
Operator dialogue terminals
Magelis graphic terminals

Connection to Fipio bus



1 **TSX FP CA ●00**: shielded twisted pair trunk cable, 150 Ω (diameter 8 mm) for normal environment or inside buildings,
or
TSX FP CR ●00: shielded twisted pair trunk cable, 150 Ω (diameter 8 mm) for harsh environment or outside buildings.
2 **TSX FP ACC 4**: IP 65 junction box.
3 **TSX FPP 10**: PCMCIA card, Fipio agent function.
4 **TSX FP CG 0●0**: tap-off connecting cable for PCMCIA TSX FPP 10/20 module card.
5 **TSX FP ACC 7**: line terminator to be placed at each segment end.
6 **TSX FP CC ●00**: tap-off cable, shielded twisted pair, 150 Ω (diameter 8 mm) for normal environment or inside buildings.
7 **TSX FP ACC 2/12**: 9-way female SUB-D type connector.

Connection to Fipway network



1 **TSX FP CA ●00**: shielded twisted pair trunk cable, 150 Ω (diameter 8 mm) for normal environment or inside buildings,
or
TSX FP CR ●00: shielded twisted pair trunk cable, 150 Ω (diameter 8 mm) for harsh environment or outside buildings.
2 **TSX FP ACC 4**: IP 65 junction box.
3 **TSX FPP 20**: PCMCIA card, Fipway.
4 **TSX FP CG 0●0**: tap-off connecting cable for PCMCIA TSX FPP 10/20 module card.
5 **TSX FP ACC 7**: line terminator to be placed at each segment end.

References:
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Operator dialogue terminals
Magelis graphic terminals

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TSX FPP ●0

Fipway network/Fipio bus connection cables and accessories *(1)*

Description	Type	Condition of use	Length m	Reference	Weight kg
Fipio PCMCIA card	Agent function	Fipio on XBT F	–	**TSX FPP 10**	0.110
Fipway PCMCIA card	–	Fipway on XBT F	–	**TSX FPP 20**	0.110
Trunk cables	8 mm, shielded twisted pair, 150 Ω	In normal environment *(2)* and inside buildings	100	**TSX FP CA 100**	5.680
			200	**TSX FP CA 200**	10.920
			500	**TSX FP CA 500**	30.000
	8 mm, shielded twisted pair, 150 Ω	In harsh environment *(3)* and outside buildings or in a daisy chain *(3)*	100	**TSX FP CR 100**	7.680
			200	**TSX FP CR 200**	14.920
			500	**TSX FP CR 500**	40.000
Dust and damp-proof junction box	Zamac IP 65	Trunk cable tap-off	–	**TSX FP ACC 4**	0.660
Line terminators (sold in lots of 2)	–	–	–	**TSX FP ACC 7**	0.020
Female connectors, 9-way SUB-D type	Zamac	–	–	**TSX FP ACC 2**	0.080
	Black polycarbonate IP 20	–	–	**TSX FP ACC 12**	0.040

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TSX FP ACC 4

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TSX FP ACC 7

Tap-off connection cables

Description	Usage		Length m	Reference	Weight kg
	From	To			
Cables for PCMCIA card	TSX FPP 10/20 card	TSX FP ACC 4 junction box	1	**TSX FP CG 010**	0.210
			3	**TSX FP CG 030**	0.410
Tap-off cables	TSX FP ACC 2 or TSX FP ACC 12 connector	TSX FP ACC 4 junction box	100	**TSX FP CC 100**	5.680
			200	**TSX FP CC 200**	10.920
			500	**TSX FP CC 500**	30.000

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TSX FP CG 0●0

(1) The characteristics and performance of the Fipio bus or Fipway network are dependent on the above TSX FP accessories being used.

(2) Normal environment:
- without special environmental constraint,
- operating temperature between + 5 °C and + 60 °C,
- fixed installations.

(3) Harsh environment:
- resistance to hydrocarbons, industrial oils, detergents and solder chips,
- relative humidity up to 100%,
- saline environment,
- extreme variations in temperature,
- operating temperature between - 10 °C and + 70 °C.
- mobile installations, cables tested in accordance with the standard VDE 472 part 603/H:
  - for use in a daisy chain, minimum radius of curvature of cable = 75 mm min.,
  - for use on a gantry, providing certain installation conditions are met (acceleration, speed, length, etc.), please consult your Regional Sales Office,
- not suitable for use on robots or multi-axial applications.

Connections:
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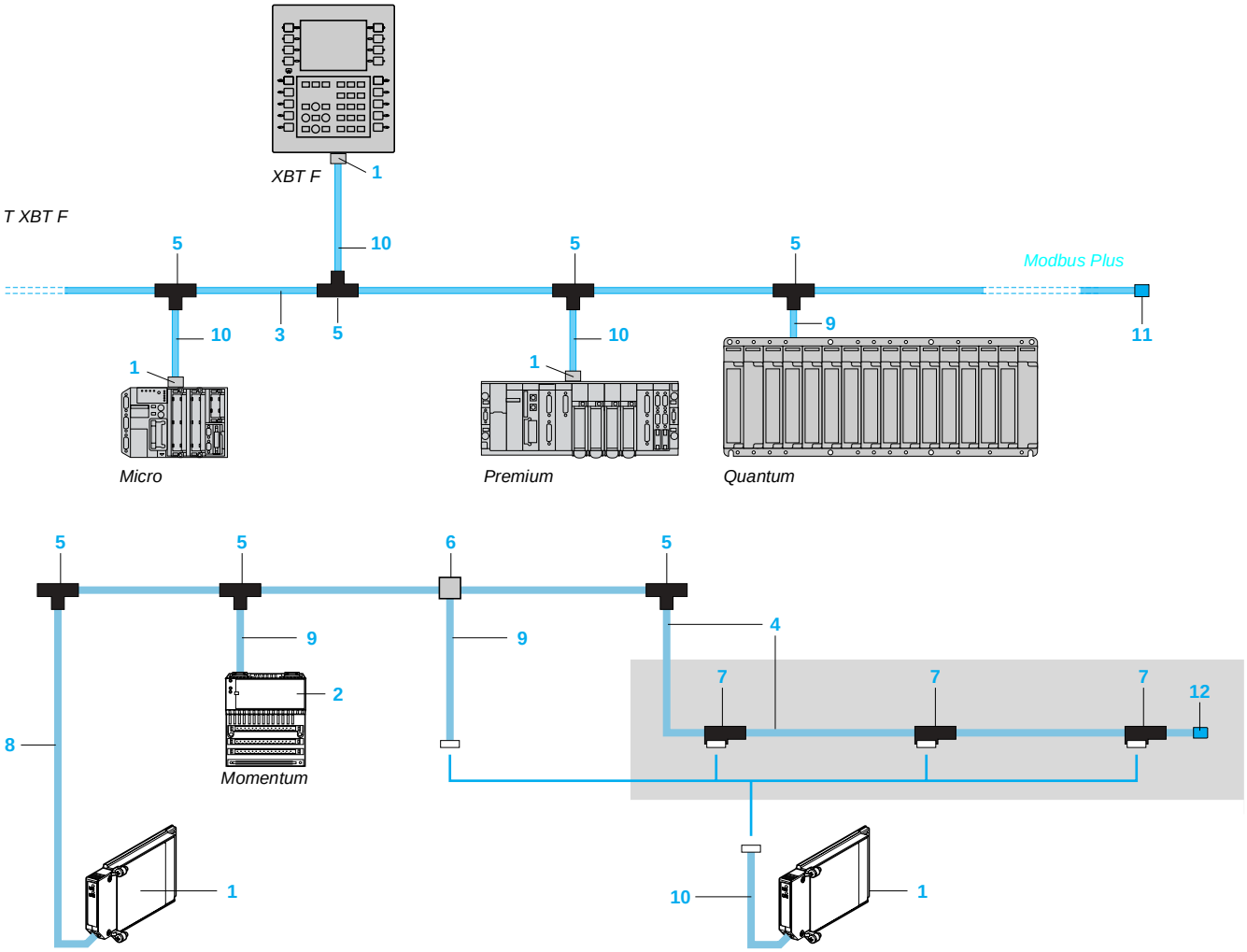
Operator dialogue terminals
Magelis graphic terminals

Connection to Modbus Plus network



1 **TSX MBP 100**: Modbus Plus PCMCIA card for Magelis terminals and Micro or Premium PLCs.
2 **170 PNT 110 20**: communication module for Momentum I/O base units.
3 **490 NAA 271 0●**: shielded twisted pair trunk cable with shielding drain (free wires at each end). Lengths: 30, 150, 300, 450 or 1500 m.
4 **170 MCI 020 ●●/021 20**: tap-off cable fitted with an RJ45 type connector at each end. Lengths: 0.25, 0.75, 3 or 10 m.
5 **990 NAD 230 00**: IP 20 junction box (integrates the line terminator).
6 **990 NAD 230 10**: IP 65 zamac junction box, provides trunk cable tap-off for connection of equipment (screw terminal connections). In addition, it incorporates an RJ45 type connector for connection of a programming and maintenance terminal.
7 **170 XTS 020 00**: IP 20 T-junction, provides tap-off for the Modbus Plus cable (cable fitted with an RJ45 type connector at each end). It has a 9-way female SUB-D type connector for connection of the equipment.
8 **TSX MBP CE 030/060**: tap-off cable for Modbus Plus PCMCIA card, fitted with a miniature 20-way connector on the PCMCIA side and with free wires on the 990 NAD 230 00/10 junction box side. Length: 3 or 6 m.
9 **990 NAD 211 10/30**: tap-off cable fitted with a 9-way female SUB-D type connector on the equipment side and with free wires on the 990 NAD 230 00/10 junction box side. Length: 2.4 or 6 m.
10 **TSX MBP CE 002**: tap-off cable for Modbus Plus PCMCIA card, fitted with a miniature 20-way connector on the PCMCIA side and a 9-way male SUB-D type connector on the network side. Can be used as an extension for cable 990 NAD 211 10/30. Length: 0.2 m.
11 **AS MBKT 185**: set of 2 line terminators (impedance matching) to be placed at each segment end. The line terminators AS MBKT 185 are used directly at the cable end (without junction box or T-junction).
990 NAD 230 11: set of 2 line terminators (impedance matching) for IP 65 junction box 990 NAD 230 10, to be placed at each segment end.
12 **170 XTS 021 00**: set of 2 line terminators (impedance matching) for T-junction 170 XTS 020 00, to be placed at each segment end.

References:
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Operator dialogue terminals
Magelis graphic terminals

TSX MBP 100

170 PNT 110 20

TSX MBP CE 030/060

References

Description	For use with	Item	Description	Reference (1)	Weight kg
Modbus Plus PCMCIA card	Magelis terminals XBT F Micro and Premium PLCs	1	1 type III PCMCIA card	**TSX MBP 100**	0.110

Description	Connection	Item	Reference (1)	Weight kg
Communication module for Momentum I/O base units	Modbus Plus network on Momentum I/O base units	2	**170 PNT 110 20**	0.110

Connection accessories *(2)*

Description	Usage	Item	Reference (1)	Weight kg
Modbus Plus junction boxes	IP 20 junction box for tap-off connection (T), integrates the line terminator	5	**990 NAD 230 00**	0.230
	IP 65 junction box for tap-off connection (T), screw terminal connection of cables, RJ45 type connector on front face	6	**990 NAD 230 10**	0.650
	IP 20 T-junction, with 9-way SUB-D type connector for connection of the equipment	7	**170 XTS 020 00**	0.260
Line terminators (sold in lots of 2)	2 impedance matchers for junction box (IP 20) 990 NAD 230 00	11	**AS MBKT 185**	0.260
	2 impedance matchers for junction box (IP 65) 990 NAD 230 10	11	**990 NAD 230 11**	–
	2 impedance matchers for T-junction (IP 20) 170 XTS 020 00	12	**170 XTS 021 00**	–
Cabling tool	Crimping Modbus Plus cable conductors in junction boxes	–	**043 509 383**	–
Fixing kit for IP 65 junction box	DIN rail mounting of junction box 990 NAD 230 10	–	**990 NAD 230 12**	–

Connection cables *(2)*

Description	Usage		Item	Length (m)	Reference (1)	Weight kg
	From	To				
Modbus Plus trunk cables	Junction box 990 NAD 230 00/10	Junction box 990 NAD 230 00/10	3	30	**490 NAA 271 01**	–
				150	**490 NAA 271 02**	–
				300	**490 NAA 271 03**	–
				450	**490 NAA 271 04**	–
				1500	**490 NAA 271 06**	–
Modbus Plus cables fitted with RJ45 connectors	T-junction 170 XTS 020 00	T-junction 170 XTS 020 00	4	0.25	**170 MCI 020 10**	–
				1	**170 MCI 020 36**	–
				3	**170 MCI 021 20**	–
				10	**170 MCI 020 80**	–
Tap-off cables with fittings	PCMCIA card TSX MBP 100	T-junction 170 XTS 020 00 or tap-off cable 990 NAD 211 10/30	10	0.2	**TSX MBP CE 002**	–
		Junction box 990 NAD 230 00/10	8	3	**TSX MBP CE 030**	0.340
				6	**TSX MBP CE 060**	0.530
	Communication modules for Momentum I/O base units, Quantum PLCs	Junction box 990 NAD 230 00/10	9	2.4	**990 NAD 211 10**	0.530
				6	**990 NAD 211 30**	0.530

(1) Multilingual service instructions included with products: English and French.
(2) For other Modbus Plus network accessories and connection cables, please consult your Regional Sales Office.

Connections:
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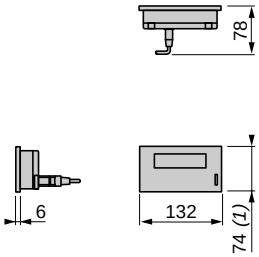
Operator dialogue terminals
Display units and terminals

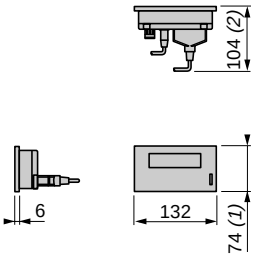
Dimensions

XBT N200/N400



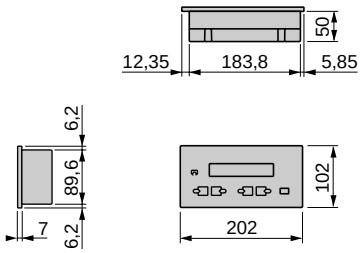
(1) Becomes 104 mm with 2 fixing clips (included with product).

XBT N401/NU400

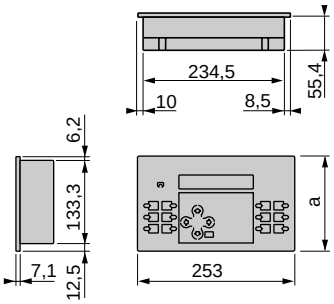


(1) Becomes 104 mm with 2 fixing clips (included with product).
(2) Becomes 58 mm with XBT Z9680 cable instead of XBT Z968.

XBT H

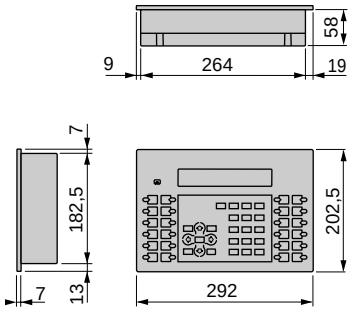


XBT P/PM

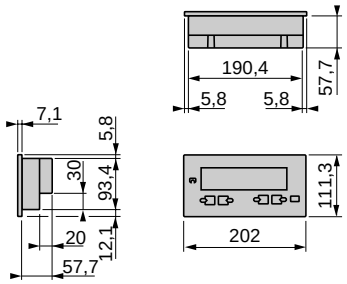


	a
XBT P	152
XBT PM	155

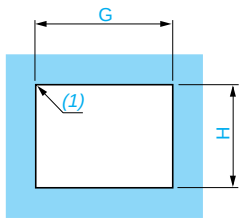
XBT E



XBT HM



Mounting



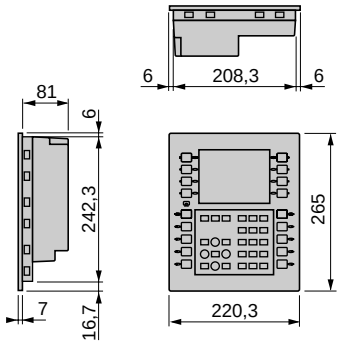
(1) 2 < r < 3.5

Display units and terminals	Cut-out for flush mounting	
	H (± 0.4 mm)	G (± 0.4 mm)
XBT N200/N400	63	118
XBT N401/NU400	63	118
XBT H	90.5	184.5
XBT P/PM	134	235
XBT E	183	265
XBT HM	99.2	190.9

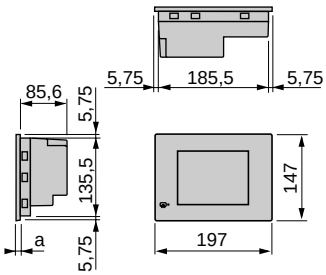
References XBT N: page 1/11
References XBT H: page 1/15
References XBT PM/HM: page 1/17
References XBT P: page 1/19
References XBT E: page 1/21

Mounting

XBT F011●10

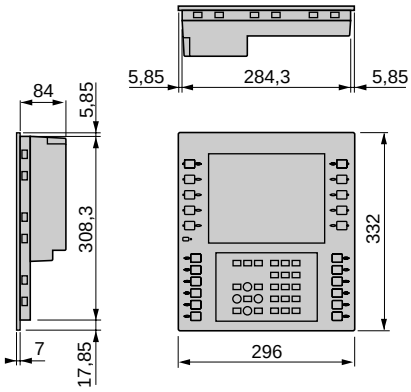


XBT F032●10/FC022

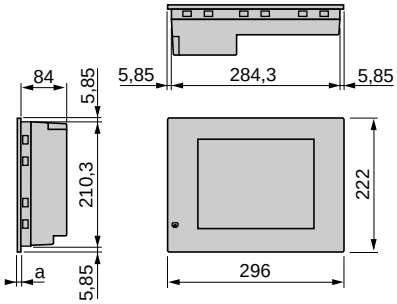


	a
XBT F032●10	7
XBT FC022	11

XBT F023/024

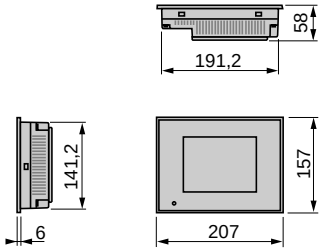


XBT F034/FC0●4

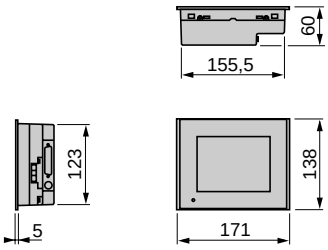


	a
XBT F034	7
XBT FC0●4	11

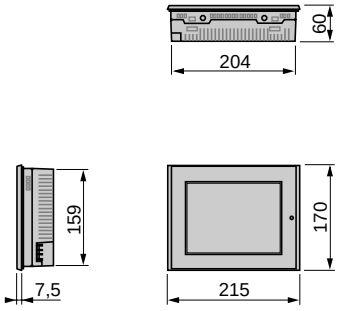
XBT G2110



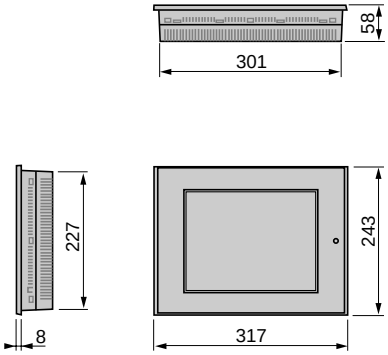
XBT G2120/G2130/G2220/G2330



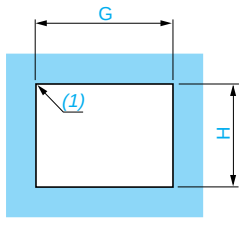
XBT G4320/G4330



XBT G5230/G5330/G6330



Mounting



(1) 2 < r < 3.5

Graphic terminals	Cut-out for flush mounting	
	H (± 0.4 mm)	G (± 0.4 mm)
XBT F011●10	243	209
XBT F032●10/FC022	136.2	186.2
XBT F023/024	309	285
XBT F034/FC0●4	210.9	284.9
XBT G2110	141.5	191.5
XBT G2120/G2130/G2220/G2330	123.5	156
XBT G4320/G4330	159.5	204.5
XBT G5230/G5330/G6330	227.5	301.5

References XBT F01/F03/FC: page 1/27
References XBT G: pages 1/37 and 1/39

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2 - Magelis *i*PC industrial PCs

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“All in one” compact products

- Magelis Smart *i*PC range . . . . . *page 2/9*
- Magelis Compact *i*PC range . . . . . *page 2/9*

Modular products

- Magelis Modular *i*PC range
  - Front panel screens. . . . . *page 2/15*
  - Control boxes. . . . . *page 2/16*
  - Control box packs . . . . . *page 2/17*

Magelis *i*PC industrial PCs

Applications		**"All in One" compact products**		
Screen 12" SVGA (800 x 600), **Data entry**	By keyboard			
	By keyboard and touch screen			
	By touch screen			
Screen 15" XGA (1024 x 768) **Data entry**	By keyboard			
	By keyboard and touch screen			
	By touch screen	●	●	
Page		2/9		

Control box *For modular products, to use with 1 front panel screen or in stand-alone (1)*	**Type**	**Smart *i*PC**	**Compact *i*PC**	
	Processor	VIA 667 MHz	Intel Pentium 4 Mobile 1.7 GHz	
	Internal hard disk	–	⩾ 20 Gb	
	RAM memory	128 Mb extendable to 512 Mb	256 Mb extendable to 512 Mb	
	CD-Rom drive	–	Yes	
	Floppy disk drive	–	Yes	
	Extension slots	2 PCMCIA slots	1 PCI bus slot, 2 PCMCIA slots and 1 Compact Flash slot	
	Ethernet TCP/IP network	1 x 10BASE-T/100BASE-TX (RJ45)		
	Input/output ports	2 x USB, 1 x COM1, 1 x COM2, 1 x parallel	2 x USB, 1 x COM1, 1 x COM2, 1 x COM3, 1 x parallel	
		1 x PS/2 keyboard	1 x USB on front panel, 1 x PS/2 keyboard, 1 x PS/2 pointing device	
	Operating system	Windows XPe integrated operating system	Windows 2000 pre-installed operating system	
	Pre-installed software or software package	Transparent Ready Web browser	– Vijeo Look	– Vijeo Look
	Supply voltage	⎓ 24 V	∿ 115...230 V	
	Type of PC or Control box	**MPC ST5 2NDJ 00T**	**MPC KT5 2NAA 00●**	**MPC KT5 5NAA 00●**
Pages		2/9		

Modular products
Control box to use with 1 front panel screen or in stand-alone (1)

MPC NA2 0NNN 00N		
	MPC NA2 0NNN 00N	
		MPC NA2 0NNN 00N
MPC NA5 0NNN 00N		
	MPC NA5 0NNN 00N	
		MPC NA5 0NNN 00N
2/15		

Modular *i*PC Small		**Modular *i*PC Medium**		**Modular *i*PC Large**	
Intel Celeron 566 MHz		Intel Pentium III 850 MHz		Intel Celeron 566 MHz	Intel Pentium III 850 MHz
		≥ 20 Gb, removable			
Optionnal		Yes, removable			
		Yes, removable			
–		1 ISA bus slot, 1 PCI bus slot and 1 ISA/PCI bus slot		2 ISA bus slots, 3 PCI bus slots and 1 ISA/PCI bus slot	
2 x USB, 1 x COM1, 1 x COM4 and 1 x parallel					
1 x external VGA video screen, 1 x PS/2 keyboard *(2)*, 1 x PS/2 pointing device *(2)*					
Windows pre-installed operating system (Windows 2000 or Windows XPe)					
Pack A	–	Pack A, B, C or D (∿ 115…230 V)	–		Pack E (∿ 115…230 V model)
∿ 115...230 V	⎓ 24 V	∿ 115…230 V ou ⎓ 24 V depending on model			
MPC AN0 2NA● 00N	**MPC AN0 2ND● 00N**	**MPC BN0 2N●A 00N**	**MPC BN0 5N●A 00N**	**MPC CN0 2N●A 00N**	**MPC CN0 5N●A 00N**
2/16 and 2/17					

(1) To use the Control box without a front panel, you will require the **MPC NP0 0NNN 00N** *mounting panel.*
(2) Port not operational when the Control box is used with the front panel screen.

Magelis *i*PC industrial PCs
Smart *i*PC and Compact *i*PC ranges

Presentation

Magelis Smart *i*PC and Compact *i*PC are two ranges of rugged industrially hardened PCs. They are built around an IP 65 front panel with a 15" color TFT LCD screen and a high-definition analog touch panel.
Complementing the Magelis Modular *i*PC range, these two new ranges of compact "all in one" products have been designed with the needs of machine manufacturers, systems integrators and users in mind: they are small in size, easy to install and setup and open to Web technologies.

The 2 ranges are differentiated as follows:

Magelis Smart *i*PC

With its built-in Ethernet TCP/IP 10/100 Mbps port, the Magelis Smart *i*PC is the ideal terminal for Transparent Ready architectures and equipment (combination of Web and Ethernet TCP/IP technologies). A ready-to-use, Thin Client station, the Magelis Smart *i*PC offers:
- Easy display of Web pages, either locally or remotely
- Access to device documentation via built-in reader software (.pdf, .doc, .xls and .ppt documents)
- System diagnostics, display and adjustment of Schneider Electric Transparent Ready devices
- For other FactoryCast services, please refer to pages 3/42 to 3/53 "Transparent Ready, embedded Web servers".

Built around the VIA 667 MHz processor with 128 MB RAM (expandable to 512 MB), the Magelis Smart *i*PC is based on standard Windows XPe technologies. Although it comes with a built-in Ethernet TCP/IP port, the Magelis Smart *i*PC also has two PCMCIA card slots that can be used for network access (Modbus, Modus Plus, Fipway, etc.). It also includes the following software components:
- JVM (*Java Virtual Machine*)
- Windows Terminal Services Client for client/server architectures.

The ultra-slim Magelis Smart *i*PC (just 62 mm deep) has a particularly rugged construction. Windows XPe and its component software tools are pre-loaded onto a ready-to-use Compact Flash memory.

Magelis Compact *i*PC

Although it uses compact technology, the Magelis Compact *i*PC is an open PC designed for open-ended solutions. It allows:
- a choice of 2 processor speeds, 667 MHz (VIA) or 1.7 GHz (Intel Pentium 4 Mobile)
- expansion via PCMCIA card (2 slots) or via PCI bus (1 slot),
- use of a 512 MB Compact Flash memory card for data storage.

The Magelis Compact *i*PC includes:
- a 20 Go or larger hard disk and 256 MB RAM, expandable to 512 MB,
- 3 USB ports, one of which is on the front panel,
- an AC power supply, 115 to 230 V AC, 50/60 Hz,
- various standard serial/parallel ports.

The Magelis Compact *i*PC is supplied with the Windows 2000 operating system.

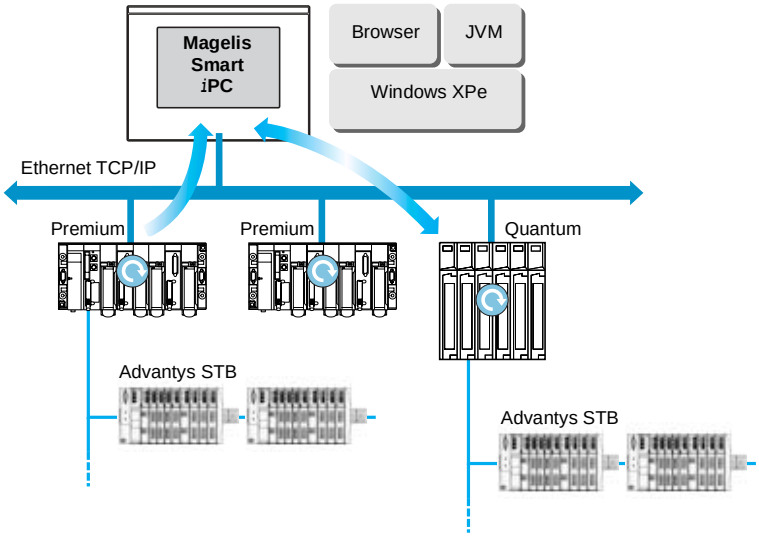
Bundled software packages

With these offers, the hardware is supplied together with Vijeo Look control software (1024 I/O), in one of two versions:
- run Time license,
- build Time/Run Time license.

This type of offer provides an industrial system, adapted to application needs, at a preferential cost.

Magelis *i*PC industrial PCs
Smart *i*PC and Compact *i*PC ranges

Typical architectures
Connections to Transparent Ready architectures



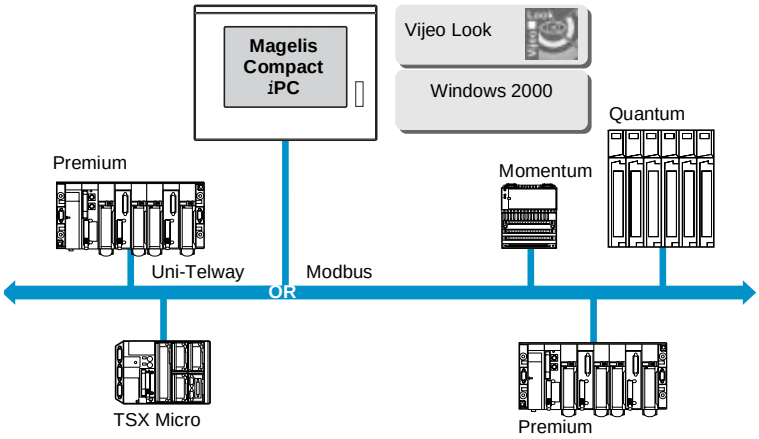
The built-in Ethernet 10/100 Mbps port in the Magelis Smart *i*PC allows it to be integrated into "full Ethernet" architectures, such as Transparent Ready. Transparent Ready devices with this type of architecture open the way for transparent communication on the Ethernet TCP/IP network. Communication services and Web services enable data to be shared and distributed between levels 1, 2 and 3 of the Transparent Ready architecture.

Used as a Web Client station, the Magelis Smart *i*PC makes it easier to implement Web Client solutions in relation to:
- Base servers embedded in field devices (Advantys STB/Momentum distributed I/O, ATV 38/58 starters, Ositrack identification systems, etc.)
- FactoryCast Web servers embedded in Modicon PLCs (TSX Micro, Premium and Quantum).

The services provided with no additional programming requirements include alarm management, graphics management and hosting of Web pages created by the user.
- FactoryCast HMI Web servers embedded in Modicon Premium and Quantum PLCs also provide database management services, automatic e-mail transmission triggered by specific process events, and arithmetic and logic calculations for data preprocessing.

The ready-to-use Magelis Smart *i*PC, reference **MPC ST5 2NDJ 00T**, shown on page 2/9 can be used as a Web client station without the need for any additional components.

Connections to network architectures (Fipway, Modbus Plus)



The bundled offer comprising the Compact *i*PC industrial PC and pre-installed Vijeo Look control software allows them to be used in mono-network architectures such as Uni-Telway/Modbus or Fipway/Modbus Plus. For Uni-Telway, an RS 485 TSX SCP 114 card *(1)* should be inserted in one of the PCMCIA slots. For a Modbus link, one of the built-in RS 232C COM ports is used.
Fipway or Modbus Plus links require a network card:
- Fipway network with a PCMCIA TSX FPP 20 card *(1)*
- Modbus Plus network with a PCMCIA TSX MBP 100 card or a PCI 416 NHM 300 30 bus card

The built-in Ethernet TCP/IP port allows Modicon PLC stations to be connected to levels 2 and 3 of communication architectures, if required.

(1) Requires an "X-Way drivers" CD-ROM, TLX CD DRV20M.

Magelis *i*PC industrial PCs
Smart *i*PC and Compact *i*PC ranges

Description of the Smart *i*PC

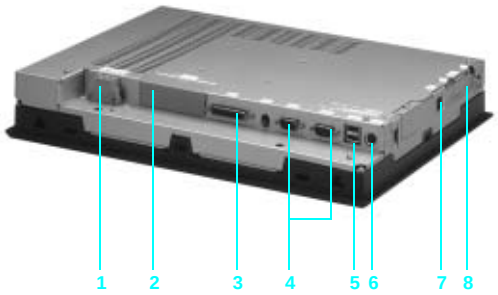
Front panel with touch screen MPC ST5 2NDJ 00T

The front panel with touch screen on the industrial PC **MPC ST5 2NDJ 00T** comprises:

1 A 15" color TFT active-matrix XGA LCD screen (maximum display area 1024 x 768 points) with high-definition analog touch panel.

2 An aluminum alloy front panel with IP 65 membrane (mounted on a hardened steel frame).

3 Two LEDs labeled:
- ■ ON, with the following meanings depending on the color:
- □ green: PC switched on
- ■ DISK (green), accessing IDE bus (accessing Compact Flash memory, etc.)



Lower and left-hand sides

All expansion slots and connection elements are accessible from the rear of the PC, with the following elements located on the lower and left-hand sides:

1 Removable screw terminals for connecting the ⎓ 24 V power supply

2 Access to the Compact Flash memory card containing the operating system and installed software

3 25-pin female SUB-D connector marked PRINTER for bi-directional parallel link

4 Two 9-pin male SUB-D connectors marked COM1 and COM2 for RS232 serial link

5 Two USB 1.1 connectors

6 Mini-DIN PS/2 connector for connecting the external keyboard

7 RJ45 connector for Ethernet 10/100 Mbps link

8 Slot for 2 additional PCMCIA cards

Description of the Compact iPC

Front panel with touch screen MPC KT5 ●NAA 00●

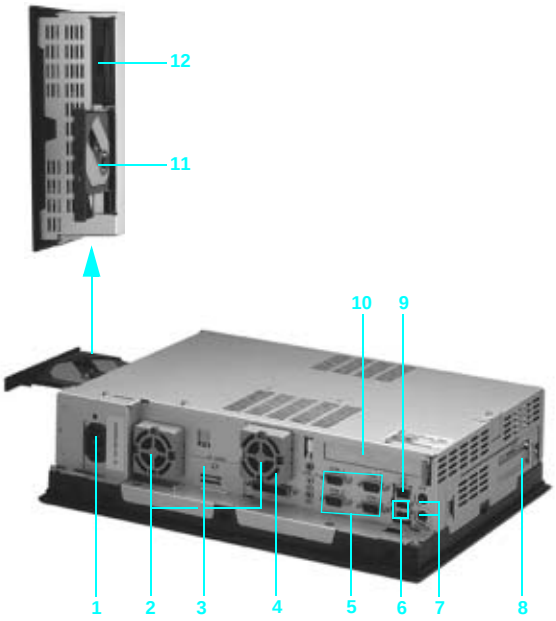
The front panel with touch screen **MPC KT5 ●NAA 00●** on industrial PCs comprises:

1 A 15" color TFT active-matrix XGA LCD screen (maximum display area 1024 x 768 points) with high-definition analog touch panel.

2 An aluminum alloy front panel with IP 65 membrane (mounted on a hardened steel frame).

3 Two LEDs labeled:
- ■ ON, with the following meanings depending on the color:
- □ green: PC switched on
- ■ DISK, green: accessing IDE bus (accessing hard disk, etc.)

4 A cover plate which provides IP 65 protection when in position and gives access when removed to:
- ■ A USB connector
- ■ A "pencil point" RESET button for restarting the processor



Lower and left-hand sides

All expansion slots and connection elements are accessible from the rear of the PC, with the following elements located on the lower and left- and right-hand sides:

1 Connector for plugging in the ∿ 100 to 240 V power cable

2 Two vents, each with an anti-dust filter and fan

3 Slot for additional Compact Flash memory card

4 25-pin female SUB-D connector marked PRINTER for bi-directional parallel link

5 Four 9-pin male SUB-D connectors labeled COM1, COM2 and COM3 for serial links (see details on page 2/8)

6 Two USB connectors

7 Two mini-DIN PS/2 connectors for external keyboard and pointing device

8 Slot for 2 additional PCMCIA cards

9 RJ45 connector for Ethernet 10/100 Mbps link

10 Slot for PCI bus expansion card

11 CD-ROM drive

12 3 1/2" floppy disk drive

Magelis iPC industrial PCs
Smart iPC and Compact iPC ranges

Characteristics

Front panel characteristics

Type			Smart iPC MPC ST5 2NDJ 00T	Compact iPC MPC KT5 2NAA 00●	MPC KT5 5NAA 00●
Touch screen	Type		15" color TFT active-matrix XGA LCD		
	Definition		1024 x 768		
	Number of colors		262144		
	Brightness		⩾ 250 cd/m² adjustable		
	Optimum viewing angle		Horizontal 160°, vertical 160°		
Touch panel			Analog resistive, 35 million cycles		
Front panel	Indicators		ON LED: PC switched on DISK LED: accessing Compact Flash system card	ON LED: switched on DISK LED: accessing hard disk	
	I/O ports		–	1 USB link (12 Mbps), protected by IP 65 cover	
	Material		Aluminum alloy with IP 65 membrane on hardened steel frame		
	Screen protection		Polyethylene sheet		
Degree of protection			IP 65, Nema 4	IP 65 (when front USB port not in use)	

CPU characteristics

Type			Smart iPC MPC ST5 2NDJ 00T	Compact iPC MPC KT5 2NAA 00●	MPC KT5 5NAA 00●
Processor			VIA 667 MHz		Pentium 4 Mobile 1.7 GHz
Internal hard disk			–	⩾ 20 GB IDE, 2 1/2"	
RAM (1 memory slot)		**MB**	SDRAM 128, expandable up to 512	SDRAM 256, expandable up to 512	
CD-ROM drive			–	Yes, 24x	
Floppy disk drive			–	3 1/2", 1.44 MB	
Video card	Built-in		128-bit PCI video controller		
Expansion slots	PCMCIA cards		2 slots (taking a maximum of 1 type III card or 2 type I or II cards)		
	PCI port		–	1 PCI bus slot	
	Compact Flash card		1 slot reserved for card containing OS and software	1 slot for max. 512 MB card	
Built-in I/O ports	Ethernet TCP/IP port		1 RJ45 connector, 10BASE-T/100BASE-TX link		
	USB ports		2 USB links (12 Mbps)		
	Serial port COM 1		1 RS 232C link (9-pin male SUB-D connector)		
	Serial port COM 2		1 RS 232C link (9-pin male SUB-D connector)		
	Serial port COM 3		–	1 RS 422/485 link (9-pin male SUB-D connector)	
	Printer port LPT1		1 bi-directional parallel link (25-pin female SUB-D connector)		
	PS/2 keyboard port		1 mini-DIN connector		
	PS/2 pointing device port		–	1 mini-DIN connector	
Operating system			Windows XPe installed *(1)*	Windows 2000	
Pre-installed software			Internet Explorer *(1)*	Internet Explorer	
			Acrobat Reader, Word/Excel/PowerPoint reader*(1)*	–	
Power supply	Voltage		⎓ 24 V (threshold values 19.2 to 28.8 V)	∿ 100 to 240 V, (threshold values 85 to 265 V), EN 61131-2 compliant	
	Frequencies	**Hz**	–	50/60 (threshold values 47/63), EN 61131-2 compliant	
	Micro-breaks	**ms**	1	10	
Power consumption		**VA**	80 maximum	120 maximum	
Material			Hardened steel		
Mounting			On panel or cabinet door (8 fixing bolts supplied)		
Environment	Certification		UL 508, UL 60950, c-UL, CSA, IEC 61131-2, Nema 4		
	Interference immunity		High-frequency interference, compliant with IEC 61131-2, EN 61000-6-2, FCC (class A)		
			Electromagnetic emissions, EN 55011 (group 1, class A), EN 61000-3-2, EN 61000-3-3		
	Safety of goods and personnel		EN 60950, EN 61131-2	EN 60950	
	Temperature in operation	**°C**	0…+ 45	+ 5 to + 50	
	in storage	**°C**	- 10 to + 60		
	Relative humidity	**%**	10 to 85		
	Usage altitude	**m**	0 to 3000 max.		
	Storage altitude	**m**	0 to 12,000 max.		
	Resistance to vibration	**m/s²**	9.8 to 10 to 25 Hz/3 axes for 30 minutes		

(1) Installed in Compact Flash memory.

References

Smart *i*PC and Compact *i*PC industrial PCs

Smart *i*PC and Compact *i*PC industrial PCs have a 15" color TFT active-matrix back-lit LCD touch screen. They include:
- An Ethernet 10BASE-T/100BASE-TX port (RJ45 connector)
- Web browser software tools (Internet/Intranet)

Also included, depending on the model:
- The Smart *i*PC, a hardened PC with no vulnerable components (hard disk, CD-ROM drive, etc.), includes:
  - Windows XPe operating system
  - Windows Terminal Services Client for client/server architectures
  - software (readers) for reading Word (.doc), Excel (.xls), PowerPoint (.ppt) and Acrobat (.pdf) files.
- The Compact *i*PC is an industrial PC with a hard disk (> 20 MB) and CD-ROM and floppy disk drives.

MPC ST5 2NDJ 00T

Type	Supply voltage	Slots available for expansion	RAM processor	Reference	Weight kg
Smart *i*PC	⎓ 24 V	2 PCMCIA	VIA 667 MHz 128 MB	**MPC ST5 2NDJ 00T**	6.000
Compact *i*PC	∿ 115 to 230 V	1 PCI bus 2 PCMCIA 1 Compact Flash	VIA 667 MHz 256 MB	**MPC KT5 2NAA 00N**	8.000
			Pentium 4 Mobile 1.7 GHz, 256 MB	**MPC KT5 5NAA 00N** ▲	8.000

Bundled Compact *i*PC industrial PC solutions

Compact *i*PC industrial PCs (∿ 115 to 230V power supply) can be supplied with Vijeo Look control software.

MPC ST5 2NDJ 00T

Type	RAM processor	Slots available for expansion	Application software	Reference	Weight kg
Compact *i*PC	VIA 667 MHz 256 MB	2 PCMCIA	Vijeo Look Run Time	**MPC KT5 2NAA 00A**	8.000
	Pentium 4 Mobile 1.7 GHz 256 MB	1 PCI bus 2 PCMCIA 1 Compact Flash	Vijeo Look Run Time	**MPC KT5 5NAA 00A** ▲	8.000
			Vijeo Look Build Time Vijeo Look Run Time	**MPC KT5 5NAA 00B** ▲	8.000

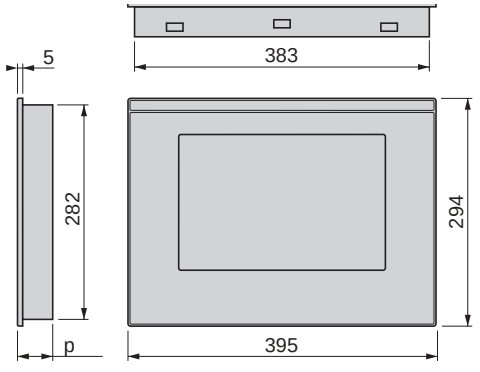
Separate parts

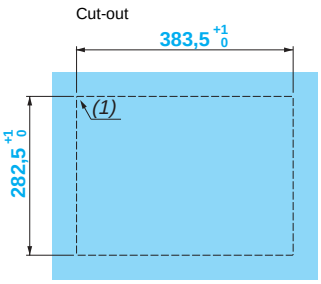
Description	Characteristics	Compatible with	Reference	Weight kg
RAM expansion kit	512 MB	VIA 667 MHz	**MPC YK0 2RAM 512**	–
		Pentium 4 Mobile 1.7 GHz	**MPC YK0 5RAM 512** ▲	–
Compact Flash memory	512 MB	Smart *i*PC Compact *i*PC	**MPC YN0 0CFE 00N** ▲	–
External keyboard	101-key QWERTY (PS/2 compatible), supplied with 5 m cable	–	**MPC YN0 0KBD 00N**	–
Maintenance kits	Include panel-mounting brackets and seals	–	**MPC YK5 0MNT KIT**	–
15" screen protection	Protective film for Smart *i*PC and Compact *i*PC	–	**MPC YK5 0SPS KIT**	–

▲ Launch due 2nd half of 2004

Dimensions

MPC ST5 2NDJ 00T/MPC KT5 ●NAA 00●





(1) 3 < r < 4

	p
MPC ST5 2NDJ 00T	62 *(1)*
MPC KT5 ●NAA 00●	100

(1) Subject to modification.

Magelis iPC industrial PCs
Modular iPC range

Presentation

The Magelis Modular iPC range is a full range of rugged industrially hardened PCs offering:
- Panel PCs
- Box PCs
- Bundle packages.

With its modular design, especially adapted for harsh environments, the Modular iPC offers a wide choice of:

- IP 65 front panels: color TFT LCD 12" or 15" screen, with or without touch screen capability, with or without QWERTY keyboard.
- Control boxes, with varying power and expansion capabilities, built around an Intel Celeron or Pentium III processor with 256 MB of RAM expandable to 512 MB and ≥ 20 MB hard disk. As standard, the Control boxes include an Ethernet 10/100 Mbps port, two USB ports, the various standard serial and parallel ports, and up to 6 PCI/ISA bus slots.

Any model of front panel screen can be used with any type of Control box. A Control box can be converted into a Box PC (with no screen) using a mounting panel.

Each Control box (except the model without PCI/ISA bus expansion slots) comprises 3 main sub-assemblies:

- Processor board (2 models)
- Power supply with AC or DC current output (4 models)
- Expansion slots for PCI/ISA bus cards (3 or 6 slots).

The modularity and flexibility of the Magelis Modular iPC range allows you to choose the ideal solution for your needs, with easy upgrades and fast maintenance.

Magelis Modular iPC, pre-installed with a Windows operating system, can run Telemecanique software tools such as:

- PLC programming tools: PL7, Concept, Unity Pro, ProWORX, etc.
- SCADA *(Supervision Control And Data Acquisition)*, Vijeo Look, Monitor Pro or OFS data server *(OPC Factory Server)*, etc.

Additional products

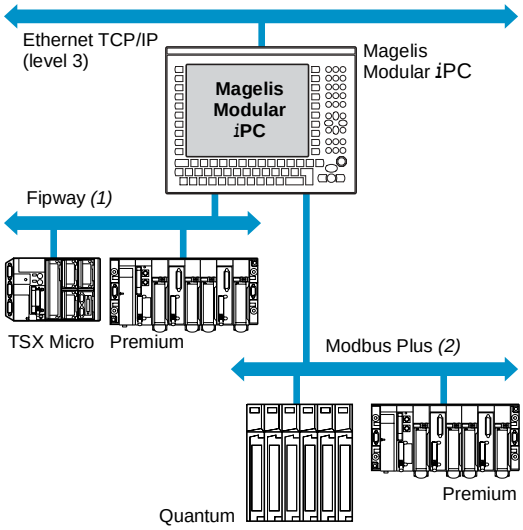
These include:
- Bundled hardware and software packages
- Accessories

- **Bundled packages**, including:
  - Control box with Telemecanique software:
    Vijeo Look and/or PL7 Pro (depending on the model)
  - Control box with Atrium PCX coprocessor and Telemecanique software:
    Vijeo Look and/or PL7 Pro (depending on the model)

This type of offer provides the security of acquiring, at a preferential cost, a pre-installed and tested industrial-grade system which is correctly dimensioned to the software application requirements and is supported across the entire Schneider Electric sales network.
Modular iPC and Atrium PCX coprocessor card bundles offer an all-in-one package including a PC micro-processor with integrated programmable PLC and SCADA *(Supervision Control And Data Acquisition)* and PL7 Pro programming software.
This type of configuration is particularly suitable for installations requiring a high level of interaction between Premium PLC automation functions and control, processing or management applications.

- **Accessories**, with:
  - RAM expansion kits (up to 512 MB)
  - 12" and 15" external flat screens which can be mounted on a swivel arm
  - External QWERTY keyboard
  - etc.

Magelis *i*PC industrial PCs
Modular *i*PC range



Architectures

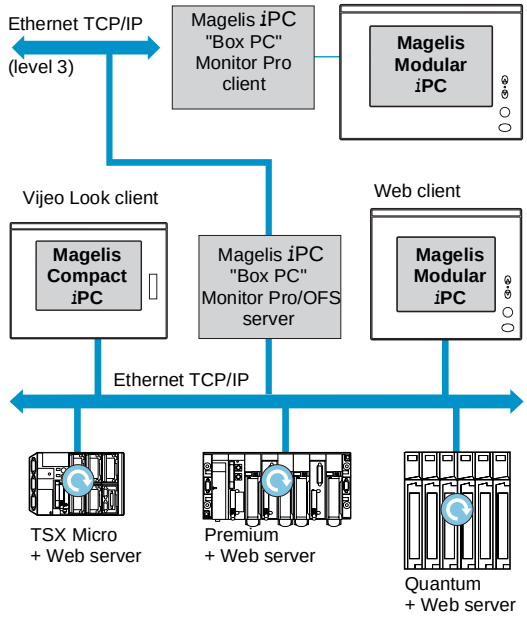
Connection to Transparent Ready Ethernet architectures

Modular *i*PC industrial PCs include two RS 232-compliant serial links (point-to-point link) as standard. The use of Uni-Telway or Modbus protocols ensures the straight-forward implementation of communication with Telemecanique PLCs.

Connection to mixed network architectures (Fipway, Modbus Plus) and Ethernet TCP/IP network

The inclusion of network cards on the ISA or PCI bus in Modular *i*PC industrial PLCs enables them to be integrated into mono or multi-network architectures such as Fipway and/or Modbus Plus.
The built-in Ethernet 10/100 Mbps port allows PLC stations to be connected to levels 2 and 3 of communication architectures.

(1) Fipway network with ISA bus card TSX FPC 10M.
(2) Modbus Plus network with PCI bus card 416 NHM 300 30 or ISA bus card AM-SA85 030.



Connection to Transparent Ready Ethernet architectures

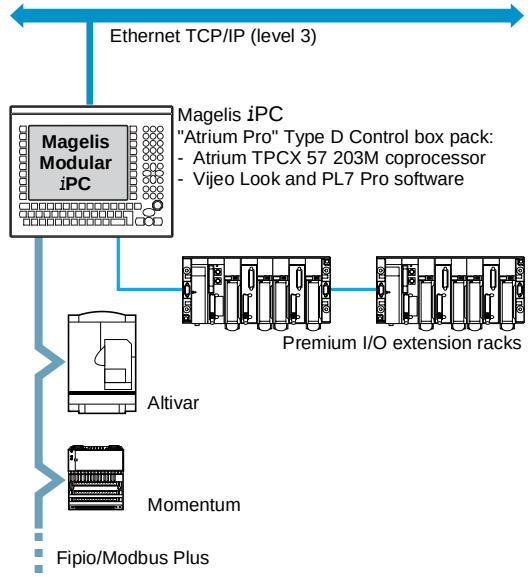
The built-in Ethernet 10/100 Mbps port in Modular *i*PCs allows them to be integrated into "full Ethernet" architectures, such as Transparent Ready, and thus provides links between levels 1, 2 and 3 of TCP/IP architectures. This dual link is achieved by the inclusion of the TCC ETH 01 Ethernet card (on PCI bus).
Open to COM/DCOM, OPC *(OLE for Process Control)* and Web standards, Modular *i*PCs facilitate the implementation of client/server solutions of the following types:

- Monitor Pro
- OPC Factory Server
- Web Client, in conjunction with FactoryCast Web servers embedded in the PLCs

This type of "full Ethernet" architecture allows the transparent circulation of data generated at level 0 *(by a sensor, for example)* to MES *(Manufacturing Execution System)* applications at level 3. The Modicon TSX Micro, Premium and Quantum PLCs are connected to the Ethernet network via:

- ☐ Ethernet Transparent Ready modules or
- ☐ FactoryCast Web server modules

In this case, the Modular *i*PC terminal, comprising a Control box with no expansion slots, represents the Web client station.



Connection to mixed bus/network architectures (Magelis Modular *i*PC and Atrium PCX bundled package)

Packs combining a Modular *i*PC Control box and Atrium PCX PLC coprocessor allow easy integration into mixed architectures such as Bus X (Premium PLC) and Fipio/Modbus Plus fieldbuses. These packs offer enhanced capacity for the integration of PLC functions in the PC.

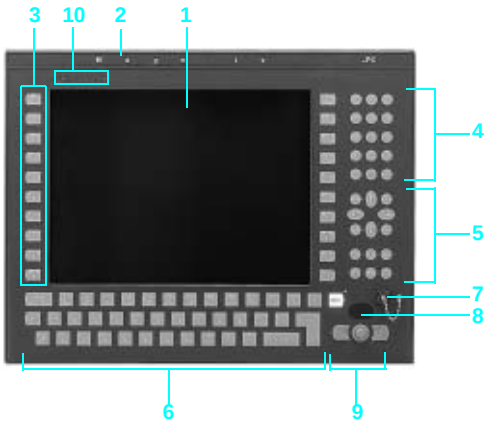
This type of offer allows:

- The remote location of PLC I/O racks up to 100 m away (Premium Bus X)
- The management of distributed I/O on Fipio or Modbus Plus fieldbuses *(3)*

The built-in Ethernet 10/100 Mbps port allows this equipment to be connected to levels 2 and 3 of communication architectures.

(3) Connection to the Modbus Plus bus requires the addition of a 416 NHM 300 30 card (on a PCI bus) or an AM-SA85 030 card (on an ISA bus).

Magelis *i*PC industrial PCs
Modular *i*PC range



MPC NA●/NB● 0NNN 00N

Description

MPC NA●/NB● 0NNN 00N front panel screens with keyboard

MPC NA●/NB● 0NNN 00N front panel screens with keyboard comprise:

1 A color TFT active-matrix LCD screen (with or without high-definition analog touch panel):
- either 12" SVGA for a maximum display definition of 800 x 600
- or 15" XGA for a maximum display definition of 1024 x 768.

2 An aluminum alloy front panel with IP 65 membrane (mounted on a nickel steel frame).

3 Two rows of 10 user-configurable keys, PF1 to PF10 and PF11 to PF20 (that also give access to special characters such as ~, #, @, *, (,), {,}, etc.).

4 Fifteen numeric keypad keys.

5 Fourteen cursor and function keys (Del, Esc, Ins, PgDn, PgUp, PrtSc, etc.).

6 Forty-one QWERTY alphabetic and function keys (Alt, Ctrl, Enter, Space, etc.).

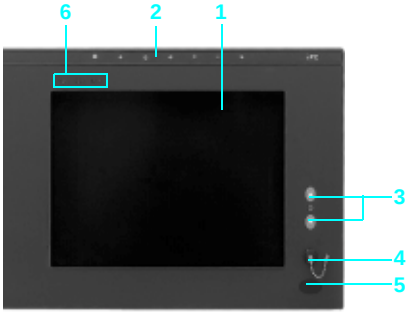
7 An access plug fitted to the mini-DIN PS/2 connector for a keyboard or external pointing device.

8 An infrared IrDA-compatible port for downloading software and data.

9 A built-in pointing device.

10 Three LEDs with, from left to right:
- ON LED: PC switched on
- DISK LED: accessing hard disk
- LAN LED: sending or receiving data via the built-in Ethernet link.

On the back panel:
- A connector for Control box connection
- Twelve threaded holes for securing the Control box



MPC NT● 0NNN 00N

MPC NT● 0NNN 00N touch screen front panels

MPC NT● 0NNN 00N front panels with touch screen comprise:

1 A color TFT active-matrix LCD screen with high-definition analog touch panel:
- either 12" SVGA for a maximum display definition of 800 x 600
- or 15" XGA for a maximum display definition of 1024 x 768.

2 An aluminum alloy front panel with IP 65 membrane (mounted on a nickel steel frame).

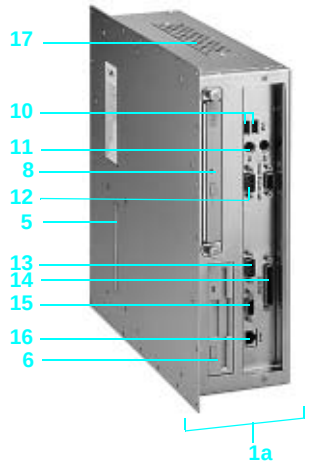
3 Two brightness adjustment keys.

4 An access plug fitted to the mini-DIN PS/2 connector for a keyboard or external pointing device.

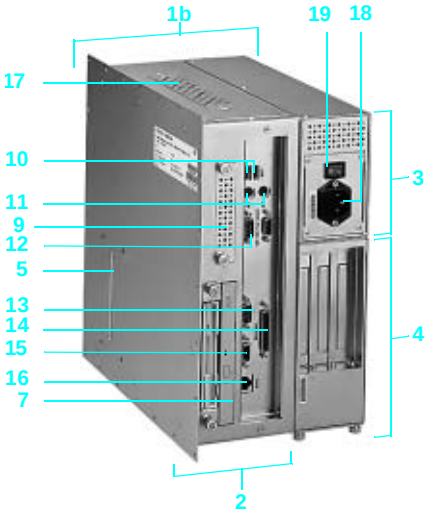
5 An infrared IrDA-compatible port for downloading software and data.

6 Three LEDs with, from left to right:
- ON LED: PC switched on
- DISK LED: accessing hard disk
- LAN LED: sending or receiving data via the built-in Ethernet link.

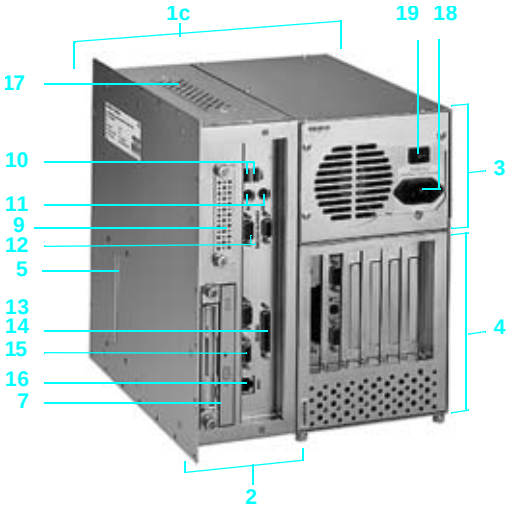
On the back panel:
- A connector for Control box connection
- Twelve threaded holes for securing the Control box



Small Control box MPC AN0 2N●● 00N



Medium Control box MPC BN0 ●N●● 00N



Large Control box MPC CN0 ●N●● 00N

Control boxes

Control boxes are available in three models with varying power and expansion capabilities:

- Small Control box MPC AN0 2N●● 00N **1a** with no PCI/ISA bus expansion slot, comprising a monobloc assembly including the Control box and its power supply.
- Medium Control box MPC BN0 2N●● 00N **1b** with 3 PCI/ISA bus expansion slots.
- Large Control box MPC CN0 2N●● 00N **1c** with 6 PCI/ISA bus expansion slots.

The table below shows the number and type of PCI/ISA bus slots in each model:

Model	Total number of slots	Number of ISA bus slots	Number of PCI bus slots	Number of PCI/ISA bus slots
Small	0	–	–	–
Medium	3	1	1	1
Large	6	2	3	1

The Medium and Large models comprise:

2 Processor sub-assembly
3 Power supply sub-assembly
4 PCI/ISA bus expansion card sub-assembly

Description of sub-assemblies

- The processor sub-assemblies **2** comprise the following elements:

5 Connector for MPC NA/NB/NT front panel screen
6 3 1/2" floppy disk drive *(MPC AN0 model)*
7 Removable drawer for CD-ROM drive and 3 1/2" disk drive *(MPC BN0/CN0 models)*
8 Slot for optional CD-ROM drive *(MPC AN0 model)*
9 Hard disk access door *(MPC BN0/CN0 models)*
10 Two USB connectors
11 Two mini-DIN PS/2 connectors for keyboard and external pointing device *(1)*
12 One 9-pin male SUB-D connector marked COM4 for RS 232 serial link
13 One 9-pin male SUB-D connector marked COM1 for RS 232 serial link
14 One 25-pin female SUB-D connector marked PRINTER for bi-directional parallel link
15 One 15-pin female SUB-D connector marked VGA for external video monitor
16 One RJ45 connector for Ethernet 10/100 Mbps link
17 An air vent. A second air vent is located on the opposite side. These vents are fitted with anti-dust filters.

- The power supply sub-assemblies **3** *(MPC BN0/CN0 models)* comprise the following elements:

18 Power supply connector
19 PC On/Off switch

Note: On the Small model MPC AN0, these elements are located on the Control box on the opposite side from elements **5** to **16**.

- The PCI/ISA bus expansion card sub-assembly **4** *(MPC BN0/CN0 models)* comprises three or six slots (according to the model) complying with IBM PC standards (ISA bus and PCI bus).

(1) Ports not operational when the Control box is fitted with the MPC NA/NB●NT● front panel screen.

Magelis *i*PC industrial PCs
Modular *i*PC range

Front panel characteristics

Type	MPC ●●● 0NNN 00N	NA2	NB2	NT2	NA5	NB5	NT5
Screen	Type	12" color TFT active-matrix SVGA LCD			15" color TFT active-matrix XGA LCD		
	Definition	800 x 600			1024 x 768		
	Number of colors	262 144					
	Brightness	≥ 200 cd/m² adjustable					
	Optimum viewing angle	Horizontal 110, vertical 90			Horizontal 160, vertical 160		
Data entry	By	Keyboard	Keyboard and touch screen	Touch screen	Keyboard	Keyboard and touch screen	Touch screen
Keyboard	Alphanumeric keys	70 standard IBM keys		–	70 standard IBM keys		–
	User function keys	2 x 10 keys		–	2 x 10 keys		–
Touch panel		–	Analog resistive, 35 million cycles				
Front panel	Pointing device	Built-in					
	I/O ports	1 connection for PS/2 keyboard or PS/2 pointing device					
		1 IrDA-compliant infrared link					
	Material	Aluminum alloy with IP 65 membrane on nickel-steel frame					
	Screen protection	Polycarbonate sheet		Polyester film	Polycarbonate sheet		Polyester film
	Mounting	On any MPC AN02/BN02/BN05/CN02/CN05 Control box					
	Power supply	By Control box					

Control box characteristics

Type	MPC	Small AN0 2N●● 00●	Medium BN0 2N●● 00●	Medium BN0 5N●● 00●	Large CN0 2N●● 00●	Large CN0 5N●● 00●
Processor		Intel Celeron 566 MHz		Pentium III 850 MHz	Intel Celeron 566 MHz	Pentium III 850 MHz
Internal hard disk		≥ 20 GB IDE, 2 1/2"				
RAM		SDRAM 256 MB, expandable to 512 MB (maximum of 2 memory slots)				
CD-ROM drive		Optional	Removable, 24x			
Floppy disk drive		3 1/2", 1.44 MB	Removable, 3 1/2", 1.44 MB			
Video card	Built-in	64-bit PCI controller, 2 MB RAM				
Expansion slots	Number	–	3 slots (1 ISA bus, 1 PCI bus and 1 PCI/ISA bus)		6 slots (2 ISA bus, 3 PCI bus and 1 PCI/ISA bus)	
Built-in I/O ports		1 Ethernet TCP/IP 10BASE-T/100BASE-TX link (RJ45 connector) 2 USB links (12 Mbps) 1 RS 232 serial link, COM4 (9-pin male SUB-D connector) 1 RS 232 serial link, COM1 (9-pin male SUB-D connector) 1 bi-directional parallel link (25-pin female SUB-D connector) 1 VGA external video screen connection (15-pin female SUB-D connection) 1 connection for PS/2 keyboard (mini-DIN connector) *(1)* 1 connection for PS/2 pointing device (mini-DIN connector) *(1)*				
Operating system		Windows pre-installed (see page 2/16)				
Power supply	Alternating current					
	Voltage ratings	∿ 115 to 230 V, (threshold values 98 to 264 V), EN 61131-2 compliant				
	Frequencies	50/60 Hz (threshold values 47/63 Hz), EN 61131-2 compliant				
	Micro-breaks	10 ms				
	Direct current					
	Voltage ratings	⎓ 24 V Control box pack (threshold values 19.8 to 32 V)				
	Micro-breaks	1 ms				
Power consumption	Alternating current	130 W	200 W		350 W	
	Direct current	120 W	160 W		350 W	
Material		Nickel steel				
Mounting		■ With front panel screen: on panel or cabinet door (fixing bolts supplied with each unit). On 19" rack with 15" front panel screen, requires mounting accessory MPC YNO 0RMK 00N ■ Without front panel screen: on panel or cabinet door, requires mounting panel MPC NP0 0NNN 00N				
Environment	Certification	UL 508, UL 60950, cUL, EN 55022, IEC 1131-2, classification in hazardous areas: UL 1604 class 1 - division 2				
	Interference immunity	High-frequency interference, compliant with EN 61131-2, IEC 1000-4-3/6 level 3 Electromagnetic emissions, class A/EN 55022/55011 Safety of property and persons, EN 61131-2, UL/CSA and IEC 529/IEC 950				
	Temperature					
	in operation	0 to + 50 °C, compliant with EN 61131-2, UL				
	in storage	- 25 to + 60 °C, compliant to IEC 68-2-2 tests Bb and Ab, IEC 68-2-14 test Na, and EN 61131-2				
	Relative humidity	10 to 90%				
	Resistance to vibration in operation	75 µm amplitude of 10 to 57 Hz, 1 gn amplitude of 57 to 150 Hz, compliant to IEC 68-2-6 test Fc and EN 61131-2				
	Resistance to shock in operation	15 gn for 11 ms, compliant to IEC 68-2-27 test Ea and EN 61131-2				
	Usage altitude	0 to 3000 m max.				
	Storage altitude	0 to 12,000 m max.				

(1) Port not operational when the Control box is fitted with the front panel screen.

Magelis *i*PC industrial PCs
Modular *i*PC range

MPC NA2/NB2 0NNN 00N

MPC NT2 0NNN 00N

MPC NA5/NB5 0NNN 00N

MPC NT5 0NNN 00N

Front panel screens

Magelis *i*PC front panel screens for mounting on a Control box include:

- A 12" or 15" color TFT active-matrix back-lit LCD screen, with or without touch screen capability, depending on the model
- An infrared IrDA-compatible port
- A connector for the PS/2 keyboard or mouse port, protected by a plug

With the keyboard model:
- A standard IBM 70-key keyboard
- 2 x 10 user-configurable keys
- A pointing device with tactile feedback

Screen size	Type of screen	Data entry by	Reference	Weight kg
12"	SVGA (800 x 600)	Keyboard	**MPC NA2 0NNN 00N**	6.500
		Touch screen	**MPC NT2 0NNN 00N**	6.500
		Keyboard and touch screen	**MPC NB2 0NNN 00N**	6.500
15"	XGA (1024 x 768)	Keyboard	**MPC NA5 0NNN 00N**	7.200
		Touch screen	**MPC NT5 0NNN 00N**	7.100
		Keyboard and touch screen	**MPC NB5 0NNN 00N**	7.200

Magelis iPC industrial PCs
Modular iPC range

MPC AN0 2N●● 00N

MPC BN0 2N●● 00N

MPC CN0 2N●● 00N

Control boxes

Modular iPC Control boxes with either a 12" or a 15" MPC N●2/N●5 front panel are equipped with:

- An Intel processor
- A 20 MB hard disk minimum
- 256 MB of RAM as standard, expandable to 512 MB
- A removable CD-ROM drive *(except for model MPC AN0 2N●A 00N)*
- A removable 3 1/2" floppy disk drive *(optional for model MPC AN0)*
- A TCP/IP, 10BASE-T/100BASE-TX, 10/100 Mbps Ethernet port *(RJ45 connector)*
- Two 12 Mbps USB ports
- One serial COM port *(RS 232)*
- One parallel port
- Pre-installed Windows operating system

Type	Processor	Expansion card slots	Supply voltage	Reference	Weight kg
Small	Celeron 566 MHz	None	∿ 115 to 230V	**MPC AN0 2NA● 00N** *(1)*	7.200
			⎓ 24 V	**MPC AN0 2ND● 00N** *(1)*	7.200
Medium	Celeron 566 MHz	3 slots	∿ 115 to 230V	**MPC BN0 2NA● 00N**	10.600
			⎓ 24 V	**MPC BN0 2ND● 00N**	10.600
	Pentium III 850 MHz	3 slots	∿ 115 to 230V	**MPC BN0 5NA● 00N**	10.600
			⎓ 24 V	**MPC BN0 5ND● 00N**	10.600
Large	Celeron 566 MHz	6 slots	∿ 115 to 230V	**MPC CN0 2NA● 00N**	13.000
			⎓ 24 V	**MPC CN0 2ND● 00N**	13.000
	Pentium III 850 MHz	6 slots	∿ 115 to 230V	**MPC CN0 5NA● 00N**	13.000
			⎓ 24 V	**MPC CN0 5ND● 00N**	13.000

"●" *in the reference defines the pre-installed operating system*		
Windows XPe *(2)*	multilingual	**J**
Windows 2000	multilingual	**A**

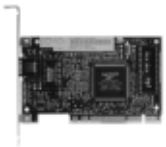
(1) Optional CD-ROM drive
(2) Due to be launched 1st half of 2004.

Magelis *i*PC industrial PCs
Modular *i*PC range

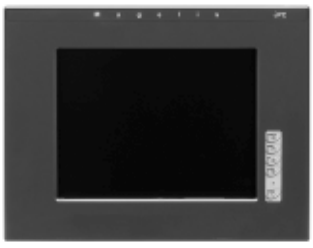
MPC AN0 2NAA 00A

MPC BN0 2NAA 00●

MPC CN0 5NAA 00E



TCC ETH 01



MPC YS2 000N 00N

Control box packs

Modular *i*PC Control boxes (with ∿ 115 to 230 V, 50 to 60 Hz power supply) can be supplied with pre-installed Telemecanique software packages and an Atrium PCX PLC coprocessor.

Type	Processor	Expansion card slots	Software pack type *(1)*	Reference	Weight kg
Small	Celeron 566 MHz	None	Pack A	**MPC AN0 2NAA 00A**	7.200
Medium	Celeron 566 MHz	3 slots	Pack A	**MPC BN0 2NAA 00A**	10.600
			Pack B	**MPC BN0 2NAA 00B**	10.600
			Pack C	**MPC BN0 2NAA 00C**	10.600
			Pack D	**MPC BN0 2NAA 00D**	10.600
Large	Pentium III 850 MHz	6 slots	Pack E	**MPC CN0 5NAA 00E**	13.000

(1) Description of Control box packs

Pack A "RT monitoring"	Vijeo Look 1024 I/O Run Time monitoring
Pack B "BT/RT monitoring"	Vijeo Look 1024 I/O Build Time/Run Time monitoring
Pack C "Machine monitoring"	Vijeo Look 1024 I/O Build Time/Run Time monitoring PL7 Pro design/debugging
Pack D "Atrium Pro"	Vijeo Look 1024 I/O Build Time/Run Time monitoring PL7 Pro design/debugging Atrium T PCX 57 203M coprocessor
Pack E "Atrium Pro"	Vijeo Look 1024 I/O Build Time/Run Time monitoring PL7 Pro design/debugging Atrium T PCX 57 353M coprocessor

Separate parts

Description	Characteristics	Reference	Weight kg
RAM expansion kit *(2)*	64 MB	**MPC YN0 0RAM 064**	–
	128 MB	**MPC YN0 0RAM 128**	–
	256 MB	**MPC YN0 0RAM 256**	–
CD-ROM drive	Optional drive for MPC AN0 control box	**MPC YN0 0CDR 00N**	–
Ethernet 10BASE-T/100BASE-TX card	PCI bus Windows 2000/XPe	**TCC ETH 01**	–
Control box mounting panel	Converts the Control box into a Box PC and allows it to be fastened to a panel or cabinet door	**MPC NP0 0NNN 00N**	–
19" rack mounting kit	Allows 15" front panel screens to be fastened to a 19" rack	**MPC YN0 0RMK 00N**	–
Front panel remote connection kit	Allows the front panel screen to be located remotely. 10 m cable	**MPC YN0 0RFP KIT**	–

Description	Characteristics	Supply voltage	Reference	Weight kg
External flat screens, flush mounting, IP65 front panel *(3)*	12", SVGA (800 x 600)	∿ 115/230 V	**MPC YS2 0NAN 00N**	–
		⎓ 24 V	**MPC YS2 0NDN 00N**	–
	15", XGA (1024 x 768)	∿ 115/230 V	**MPC YS5 0NAN 00N**	–
		⎓ 24 V	**MPC YS5 0NDN 00N**	–

Description	Characteristics	Reference	Weight kg
Swivel arm	For MPC YS● external screen	**MPC YN0 0ARM 00N**	–
External keyboard, with 5 m cable	101-key QWERTY (PS/2 compatible)	**MPC YN0 0KBD 00N**	–

(2) Control boxes have 2 slots for RAM cards (one of which has a 256 MB RAM card installed as standard).
(3) Color TFT active-matrix back-lit LCD screens supplied with a 3 m cable.

Replacement and expansion parts

MPC YN0 0PWS ●CM

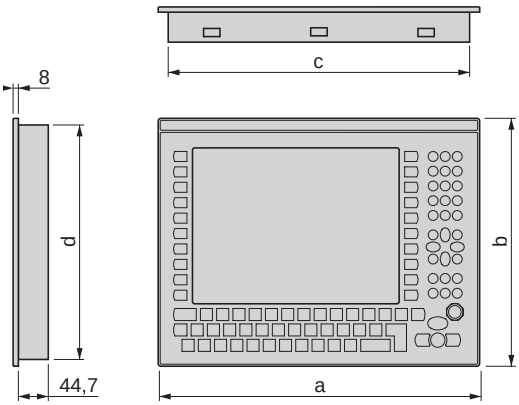
MPC YN0 0SLT 003

Description	Use	Characteristics	Reference	Weight kg
Removable > 20 GB hard disk	Medium and Large Control box	Supplied with a restore disk with which the system can be reinstalled from a restore CD	**MPC YNO 0HDD SFW**	–
Power supply sub-assemblies	Medium Control box MPC BN0	∿ 115 to 230 V	**MPC YN0 0PWS ACM**	–
		⎓ 24 V	**MPC YN0 0PWS DCM**	–
	Large Control box. MPC CN0	∿ 115 to 230 V	**MPC YN0 0PWS ACL**	–
		⎓ 24 V	**MPC YN0 0PWS DCL**	–
Expansion slot sub-assemblies for Control box	Medium	3 slots	**MPC YN0 0SLT 003**	–
	Large	6 slots *(1)*	**MPC YN0 0SLT 006**	–
Drive sub-assemblies *(2)*	Removable CD-ROM and floppy disk drive assembly		**MPC YN0 0DRV 00N**	–
Maintenance kits	Comprising: fuses, anti-dust filters, seal, screws	12" touch screen	**MPC YN2 TMNT KIT**	–
		12" keyboard	**MPC YN2 KMNT KIT**	–
		15" touch screen	**MPC YN5 TMNT KIT**	–
		15" keyboard	**MPC YN5 KMNT KIT**	–

(1) Converts the Medium 3-slot Control box into a Large 6-slot Control box.
(2) Sub-assembly for Medium or Large Control box.

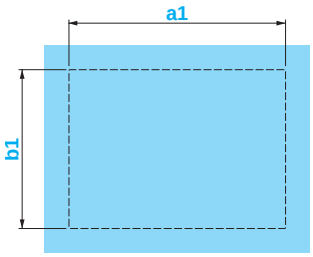
Dimensions

Front panel screens with keyboard MPC NA2/NA5/NB2/NB5

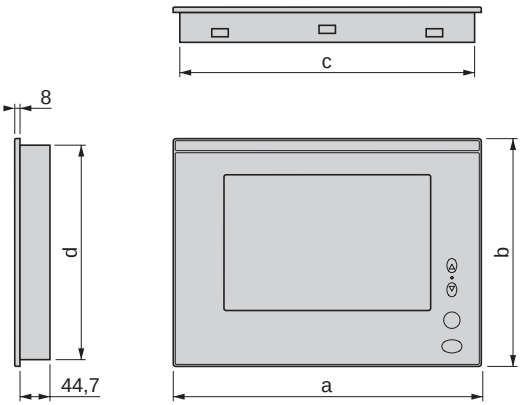


	a	b	c	d	a1	b1
MPC NA2	410	330	390	310	392	312
MPC NB2	410	330	390	310	392	312
MPC NA5	480	370	450	350	452	352
MPC NB5	480	370	450	350	452	352

Cut-out

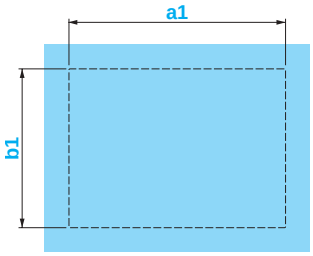


Front panel touch screens MPC NT2/NT5



	a	b	c	d	a1	b1
MPC NT2	380	330	360	310	362	312
MPC NT5	460	340	440	320	442	322

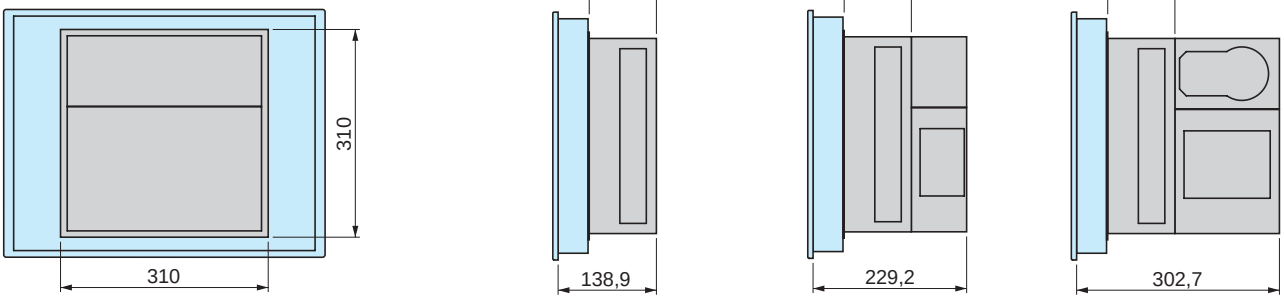
Cut-out



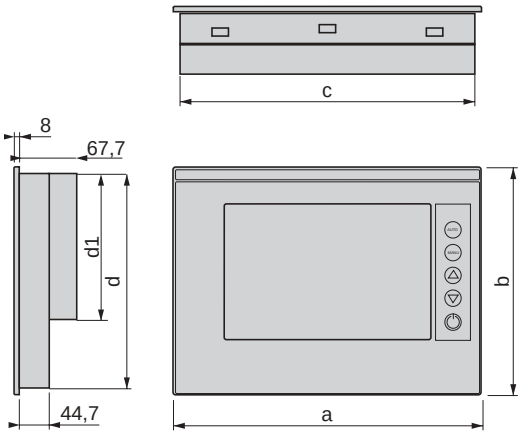
Dimensions (continued)

MPC AN0/BN0/CN0 Control boxes

Small, MPC AN0	Medium, MPC BN0	Large, MPC CN0

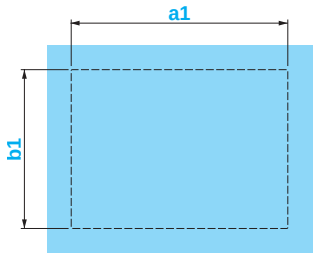


MPC YS2/YS5 0N●N 00N external flat screens



	a	b	c	d	d1	a1	b1
MPC YS2	380	330	360	310	210	362	312
MPC YS5	460	340	440	320	215	442	322

Cut-out



Mounting

The MPC N●● front panel screen, MPC ●N0 control box and MPC YS2/YS5 external flat screen assemblies can be mounted on a panel or cabinet door with the fixing parts supplied with each screen: 2 x 4 parts with the 12" screen and 3 x 4 parts with the 15" screen.

Contents

3 - Softwares and Web servers

Selection guide . . . . . page 3/2

Traditional architecture, HMI executed on dedicated terminal or PC platform

- XBT L1003 development software . . . . . *page 3/7*
- Vijeo Designer configuration software . . . . . *page 3/9*
- Vijeo Look supervisory software . . . . . *page 3/23*
- Monitor Pro V7.2 supervisory software . . . . . *page 3/25*
- OFS data server software . . . . . *page 3/41*

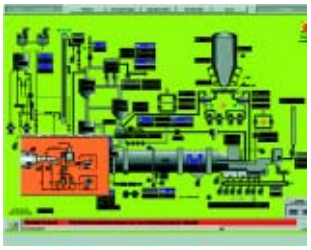
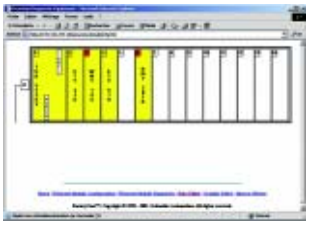
Web architecture, embedded HMI in PLC

- Standard Web services . . . . . *page 3/44*
- FactoryCast Web server . . . . . *page 3/46*
- FactoryCast HMI Web server . . . . . *page 3/48*

Softwares and Web servers

Applications			**Traditional architecture, HMI executed on dedicated terminal or PC platform**	
			Configuration software for user interface applications	
Target products	Type		Magelis XBT N/H/P/E Magelis XBT HM/PM Magelis XBT F/FC *(1)*	Magelis XBT G *(1)*
	Operating system on terminals		Proprietary Magelis operating system	
Functions	Reading/writing of PLC variables		Yes	
	Display of variables		Yes	
	Data processing		–	Yes, with Java programming
	Sharing of variables between HMI applications		–	
	Saving of variables to external database		–	
Development of graphics applications	Native library of graphic objects		Yes	
	Container	Active X	–	
		Java Beans	–	Yes
	Curves and alarms		Yes, with XBT F/FC terminal	Yes, with log
	Scripts	VBA	–	
		Java	–	Yes
Online modification of applications			–	
Communication between PLCs and HMI application			Via I/O drivers	
Uploading of applications			Yes	No
Simulation of HMI applications			Yes	
Redundancy			–	
Recipe management			Yes	No
Report printing			Form, historical data and alarm pages	–
Access security			Linked to user profiles	
Software compatible with OS			Windows 98, 2000 or XP	Windows 2000 or XP
Type of software			**XBT L1000**	**Vijeo Designer**
Pages			3/7	3/9

(1) Magelis XBT terminals behave transparently on restoration of power.

SCADA supervisory software		**Web architecture, embedded HMI in PLC**	
		Ethernet TCP/IP modules with embedded Web server	
			
Magelis Compact *i*PC industrial PCs Magelis Modular *i*PC industrial PCs PC micro-computers	Magelis Modular *i*PC industrial PCs PC micro-computers	TSX Micro TSX ETZ Premium TSX ETY Quantum 140 NOE 771	Premium TSX WMY 100 Quantum 140 NWM 100 00
Microsoft Windows			
Yes	Yes Application tasks	–	Yes
	Yes Client/server architecture	–	
Yes MSDE 2000 interface supplied *(2)*	Yes SQL server 2000 interface supplied	–	Yes + e-mail transmission triggered by event
Yes		–	
	–	Yes	
		Alarms via diagnostics buffer *(3)*	
Yes	Yes + compiled math and logic	–	
	–		
Yes		–	Yes
Via OFS data server	Via OFS data server or I/O drivers	Via internal bus on Premium/Quantum platforms	
Yes			
		–	Yes
	Yes	–	
Yes		–	
Alarms and setpoints	All information in the real-time database	–	
		Windows 98, 2000, NT or XP	Windows 2000 or XP
Vijeo Look	**Monitor Pro**	**FactoryCast**	**FactoryCast HMI**
3/23	3/34	3/47	3/53

(2) Compatible with SQL server 2000 interface.
(3) Specific memory area with Modicon Premium (with PL7 or Unity Pro software) and Quantum (with Unity Pro software) PLC platforms.

Softwares and Web servers
XBT L1003 development software

XBT L1003 development software is used to create operator dialogue applications designed for controlling automated systems and is used with:
- display units XBT N/H/HM,
- terminals XBT P/E/PM,
- and graphic terminals XBT F01/F02/F03/FC.

For the New Technology touch-sensitive graphic terminals XBT G, see Vijeo Designer configuration software pages 3/8 and 3/9.

The XBT L1003 software runs on PC compatibles equipped with Windows 98, 2000 or XP operating system.
Applications created using XBT L1003 software are independent of the protocol used; it is possible to use the same operator dialogue application with all the different PLCs offered by the major manufacturers on the market.

Configuration

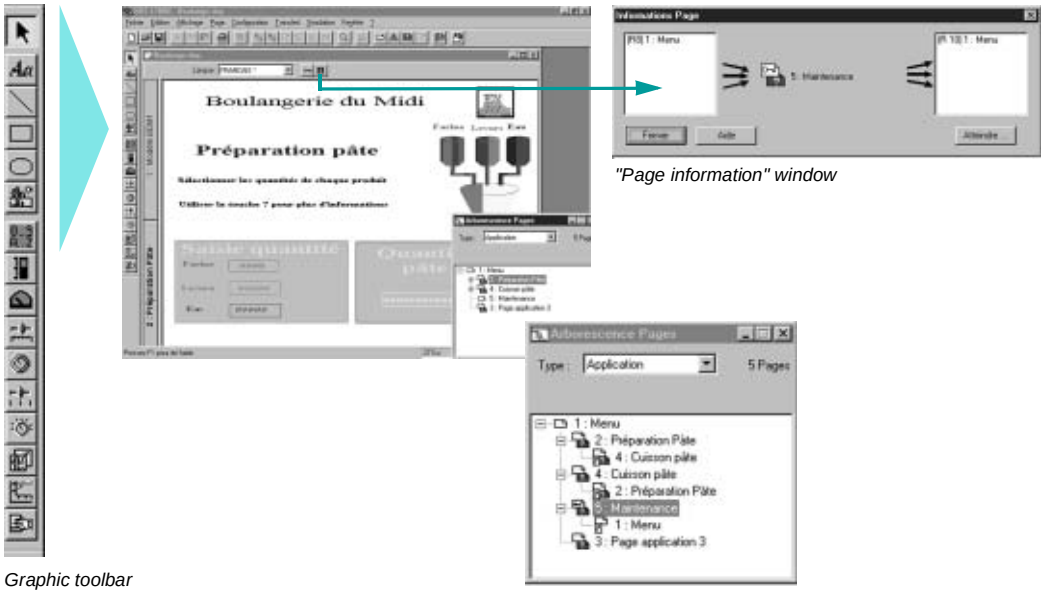
The XBT L1003 software runs on Windows 98, 2000 and XP.

It is used to easily create various types of pages:
- application pages (can be interlinked),
- alarm pages,
- help pages,
- recipe pages,
- etc.

They can contain all sorts of variables and graphic objects, which are either predefined in the XBT L1003 software or created using other applications and then imported (bitmap format, etc.). Various properties can be assigned to them: min.-max. limits, colour, movement, weighting, etc.

XBT L1003 software can be used to configure the function keys to activate commands on the machine or call-up application pages. It can also be used on the graphic terminals to import the PL7 or Concept PLC symbols database.

Main toolbar



Graphic toolbar

"Page information" window

"Page Tree Structure" window

References:
page 3/7

Softwares and Web servers
XBT L1003 development software

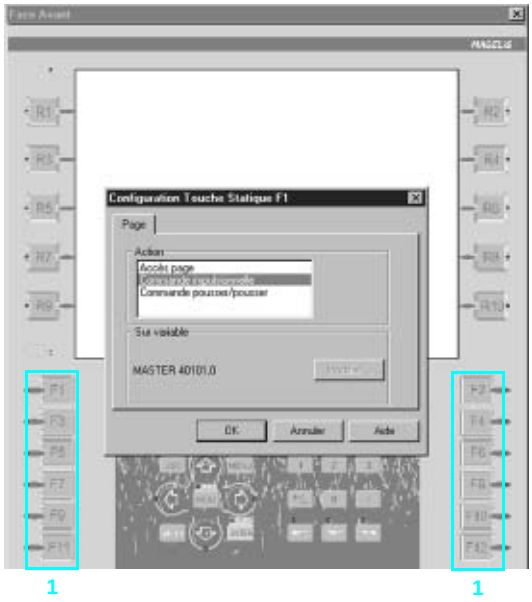
Simulation on PC compatible

XBT L1003 software offers the option of simulating all your operator dialogue applications from the design office without the use of graphic terminals and PLCs.

The following can be tested using the simulation programme and the keyboard on a PC compatible:
- navigation between pages,
- entry of variables,
- display of variables,
- simulation of an alarm.

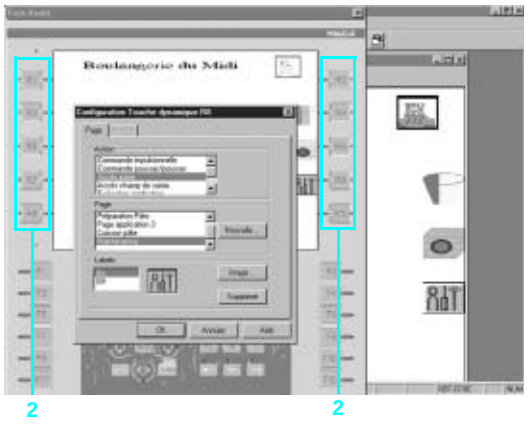
Using the function keys

The operator terminals and graphic stations have two types of function key: static keys 1 and dynamic keys 2.



Static keys 1
These are defined for the whole application.

They can have the following functions:
- page access,
- latching memory bits,
- toggling memory bits (ON/OFF).



Dynamic and touch-sensitive keys 2
These are associated with one page. Their role can be reassigned or changed from one page to another.

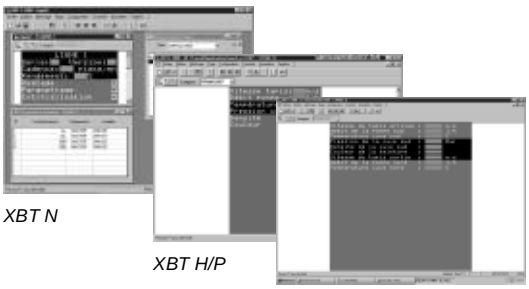
They can have the following functions:
- page access,
- latching memory bits,
- toggling memory bits (ON/OFF),
- positioning on a data entry field,
- direct writing.

A label (bitmap image) is assigned to each key and can vary from page to page.

On touch-sensitive terminals, the touch-sensitive zones and touch-sensitive keys access the same functions as dynamic keys on keypad terminals.

References:
page 3/7

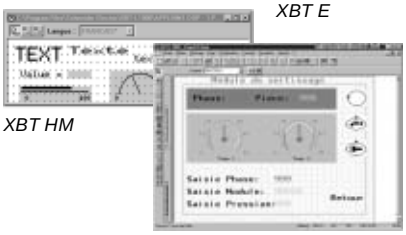
Softwares and Web servers
XBT L1003 development software



XBT N

XBT H/P

XBT E



XBT HM

XBT F

Screen windows

XBT L1003 software is used to design page contents in WYSIWYG (What You See Is What You Get) format: anything created using the software is displayed in exactly the same way on the operator dialogue screen. To assist the designer, the software offers a display unit or a virtual screen, depending on the type of terminal.

Model pages

Model pages (1)

Model pages, created by the designer, are pages whose graphic format (text, images or static objects) applies to all other pages in the same family.

There are three types of model pages:
- application,
- alarm,
- help.

Alarm pages

Alarm pages

Alarm pages indicate any faults in the process.
The advantage of alarm pages lies in their event-triggered display:

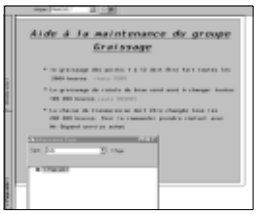
During operation

□ When a fault occurs, it is often the consequence of other faults. The priority levels enable the terminal to display the most important fault, the one presenting the highest risk to the process.

□ The occurrence of any fault is time and date stamped.

During maintenance operations

□ The terminal memorises the faults in sequence (log) making it easy to find the cause of the fault.



Help pages

Help pages and help windows (1)

Available with XBT F graphic terminals, the help pages and windows can be associated with application or alarm pages. Help windows can be associated with any variable field.

(1) Available with XBT F graphic terminals.

References:
page 3/7

Softwares and Web servers
XBT L1003 development software

802969

XBT L1003M

Software for Magelis terminals

Multilingual software packages designed for PC compatibles (with a minimum of a Pentium II, 350 MHz processor, 30 Mb available space on the hard disk and 64 Mb RAM memory with Windows 98 or 128 Mb RAM memory with Windows 2000 or XP operating system).

They are supplied with electronic documentation for alphanumeric and graphic terminals and Schneider Electric communication protocols: Uni-Telway, Fipio, Fipway, Modbus, Modbus Plus, TCP/IP Modbus, KS, TCP/IP X-Way.

This software gives access to the following functions:
- dynamic link between the XBT L1000 and PL7 databases or Concept;
- remote downloading of XBT F application on Uni-Telway, Fipway, TCP/IP X-Way, Modbus Plus;
- DIAG VIEWER function on XBT F and Premium (refer to Premium automation platform catalogue).

The **XBT Z915** and **XBT Z945** cables and **XBT Z962** 25-way/9-way connection interface are only supplied with the XBT L1003M software package.

Description	Compatibility	Operating system	Support	Documentation	Reference	Weight kg
Schneider Electric software pack (with Schneider Electric protocols)						
Alphanumeric and graphic configuration	XBT N/H/P/E XBT HM/PM XBT F	Windows 98, 2000 or XP	CD-ROM	Multilingual: English, French, German, Spanish and Italian PDF format	**XBT L1003M**	1.500
Schneider Electric software update (with Third party and Schneider Electric protocols)						
Alphanumeric and graphic configuration	XBT N/H/P/E XBT HM/PM XBT F	Windows 98, 2000 or XP	CD-ROM	Multilingual: English, French, German, Spanish and Italian PDF format	**XBT LUP1004**	0.100
Demonstration software						
Alphanumeric and graphic configuration	XBT N/H/P/E XBT HM/PM XBT F	Windows 98, 2000 or XP	CD-ROM	Multilingual: English, French, German, Spanish and Italian PDF format	**XBT L1003DEMO**	0.100

Software for alphanumeric display units and terminals

Multilingual software package designed for PC compatibles (with a minimum of a Pentium II, 350 MHz processor, 30 Mb available space on the hard disk and 64 Mb RAM memory with Windows 98 or 128 Mb RAM memory with Windows 2000 or XP operating system). It is supplied with electronic documentation for alphanumeric display units and terminals, **XBT Z915** and **XBT Z945** cables and Schneider Electric communication protocols: Uni-Telway, Modbus, KS.

Light software pack with Schneider Electric protocols						
Description	**Compatibility**	**Operating system**	**Support**	**Documentation**	**Reference**	**Weight kg**
Alphanumeric configuration	XBT N/H/P/E XBT HM/PM	Windows 98, 2000 or XP	CD-ROM	Multilingual: English, French, German, Spanish and Italian	**XBT L1001M**	0.650

Documentation

Description	Format		Reference *(1)*	Weight kg
Magelis user's manual	A5 bound	To order separately to the XBT L100●M CD-ROM	**XBT X000●●**	0.700

*(1) Add the following suffix to the reference: **EN** for English, **FR** for French, **DE** for German, **ES** for Spanish, **1T** for Italian.*

Schneider Electric downloadable protocols information

PLC brand	Compatibility			Protocol name
	XBT N	XBT H/P/E/HM/PM	XBT F	
Schneider Electric	■	■	■	Uni-Telway V1.0/2.0
	■	■	■	Modbus
	–	■	■	KS
	–	–	■	Fipio
	–	–	■	Fipway
	–	–	■	Modbus Plus
	–	–	■	TCP/IP Modbus
	–	–	■	TCP/IP X-Way

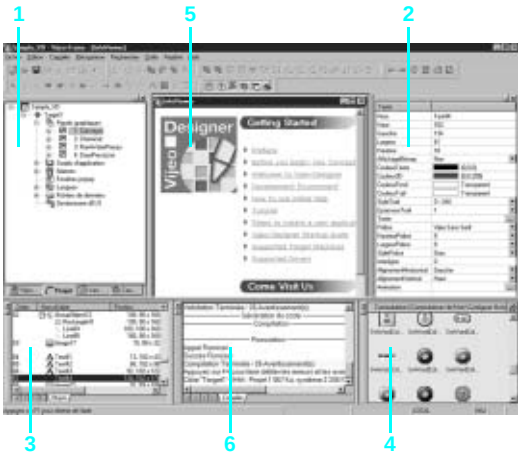
Softwares and Web servers
Vijeo Designer configuration software

Presentation

Vijeo Designer configuration software is used with the whole range of New Technology Magelis XBT G terminals to create operator dialogue applications designed for controlling automation systems.

For other Magelis display units and terminals, see XBT L1003 development software pages 3/4 to 3/7.

The Vijeo Designer software runs on PC compatibles equipped with Windows 2000 or XP operating system.



Configuration

Vijeo Designer configuration software enables operator dialogue projects to be easily and quickly performed due to its advanced ergonomics using 6 configurable windows:

1 Navigator
2 Object properties
3 Object listing
4 Library of animated graphic objects
5 Information
6 Report.

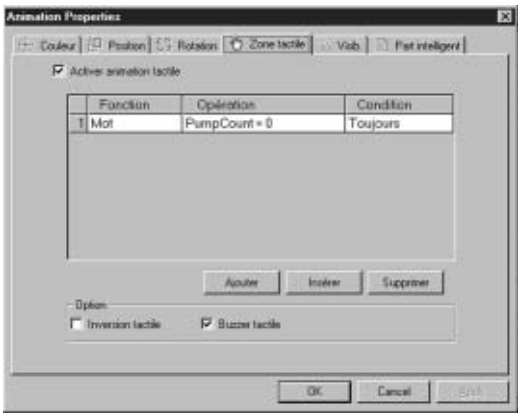
Vijeo Designer configuration software also offers complete application management tools:

- project creation, a project being one or several applications for Terminal XBT G,
- cross-referencing of application variables,
- application synoptics documentation,
- a simulation mode enabling easy testing of the application from the design office.

Graphics editor

The powerful graphics editor of the Vijeo Designer software enables easy creation of synoptics when developing applications:

- dots
- lines
- rectangles
- ellipses
- arcs
- pie charts
- polylines
- polygons
- pegular polygons
- bezier curves
- scales
- text
- images
- curves
- summary of alarms.

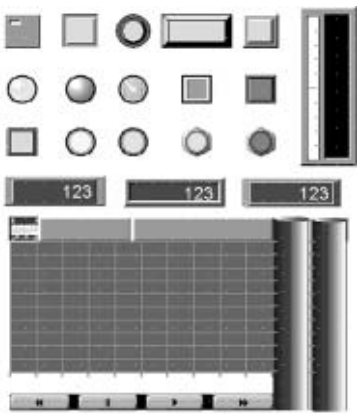


Object animations

8 types of object animation enable quick establishment of animated synoptics:

- pressing on tactile feedback
- changing of colour
- filling
- movement
- rotation
- size
- visibility
- value display.

References:
page 3/9



Library of animated objects

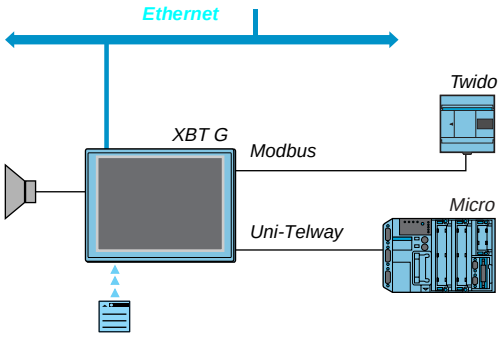
The library of animated objects makes the creation of synoptics very efficient by using the numerous objects available: buttons, lights, curves, bargraphs, etc.
By simple “drag and drop” operation using the mouse, the object is positioned on the synoptic being created.

This library can be expanded by adding the user's objects using the same simple “drag and drop” method.

Scripts

Vijeo Designer software enables the processing of information within the XBT G terminal using Java language scripts.
This function enables establishment of some complex animations, automation of some tasks within the terminal and management of calculations in order to relieve the PLC programmes.

The scripts can be associated with:
- variables,
- operator actions,
- screens,
- the application itself.



Advanced functions

Based on new technologies relating to information, a large number of advanced functions are available on Magelis XBT G terminals for processing a higher volume of data, both faster and more reliably, in order to meet the new requirements of our customers:
- alarm or curve logs on the “Compact Flash” card for saving and transfer of data,
- multilingual management: applications can be configured in up to 20 languages,
- multiwindow management on the application screens for improved ergonomics,
- multimedia data management for the most common formats:
  - image display (JPEG and BMP files),
  - text display (TXT files),
  - sound message processing (WAV files),
- multimode application transfer: serial link, Ethernet and Compact Flash,
- multi-line communication; for multifunction terminals, 2 serial links + Ethernet can be active simultaneously.

VJD SPUL FUCDV10M

References

Software for graphic terminals XBT G

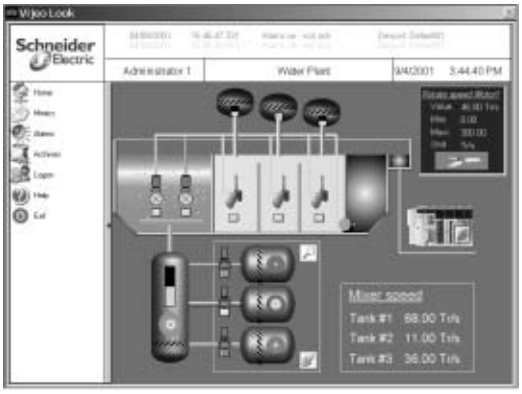
Description	Composition	Operating system	Support	Reference	Weight kg
Configuration software Vijeo Designer	With Schneider Electric protocols and transfer cables	Windows XP and 2000	CD-ROM	**VJD SPUL FUCDV10M**	0.400
Demonstration software Vijeo Designer	–	Windows XP and 2000	CD-ROM	**VJD SPUL TUCDV10M**	0.050

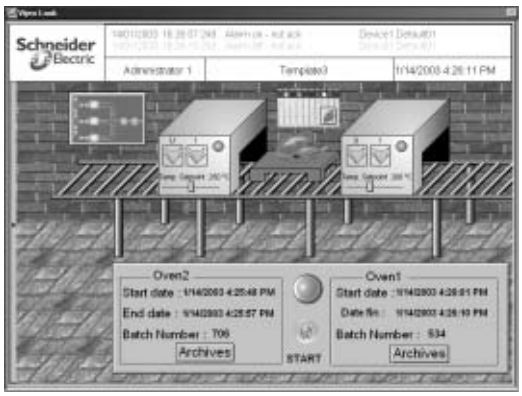
Documentation

Description	Composition	Support	Reference *(1)*	Weight kg
Technical documentation set	2 multilingual volumes: Vijeo Designer educational software, Setting-up terminals XBT G	Paper (also included in pdf format on software CD-ROM)	**VJD USE 000V10●**	–

*(1) Add the following suffix to the reference: **E** for English, **F** for French, **G** for German, **1T** for Italian, **S** for Spanish.*

Softwares and Web servers
Vijeo Look supervisory software





Presentation

Vijeo Look is a SCADA *(Supervision Control And Data Acquisition)* supervisory software solution designed for standalone stations. It is based on open, standardized technologies.
Easy to implement, it offers all the standard functions of a graphic supervision tool.
Vijeo Look is supplied with a pre-configured OFS *(OPC Factory Server)* server. It is compatible with PCs running the Windows 2000 Professional or Windows XP Professional operating system. It can be used to create applications based on a whole range of Telemecanique PLCs including Twido, Modicon TSX Micro and Modicon Premium/Atrium/Momentum/Quantum.
Vijeo Look interfaces easily with industrial software applications such as MES *(Manufacturing Execution System)* and ERP *(Enterprise Resource Planning)* systems, as well as standard office software packages.
Vijeo Look offers the ideal solution for machine manufacturers and independent production units.

Vijeo Look supervisory software can provide the following functions:
- Acquisition of PLC tags
- Visualization of these tags
- Process supervision and control
- Recording the values for PLC tags or internal process tags in a database
- Embedded software processing

Easy to use and innovative, Vijeo Look offers ideal solutions, while also facilitating the use of Monitor Pro SCADA software, once the application has been migrated.

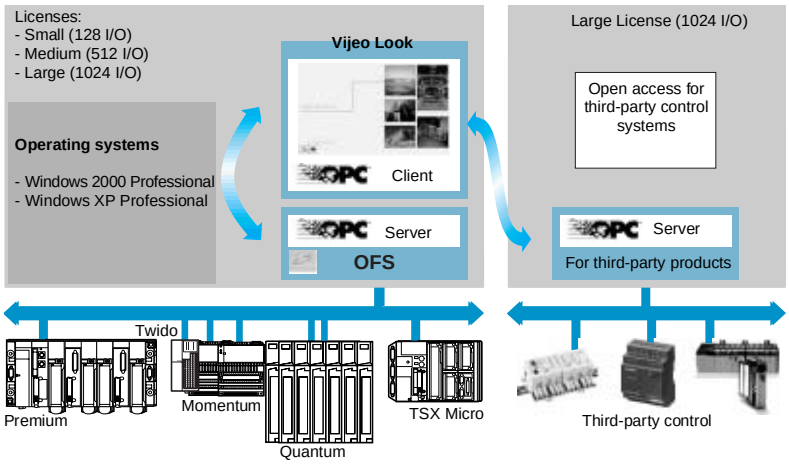
Structure of the offer

The Vijeo Look offer includes 2 types of software license:
- Build Time/Run Time license *(BT/RT)* allowing the application to be built and run
- Run Time license *(RT)* allowing the application built with the RT/BT license to run

There are three I/O sizes offered for each license type: Small (128 I/O), Medium (512 I/O) and Large (1024 I/O).
Depending on the hardware configuration and application requirements, certain precautions need to be taken into consideration (see “Recommendations for use” page 3/22).

Note: *only the tags used for visualization, embedded processing and logged tags are taken into account when calculating the number of I/O. It should be noted that for all licenses, internal tags and specific alarm-type tags used in the Alarm viewer (for visualization and acknowlegement) are not counted. Similarly, tags used for recipe management only are not counted.*

In the case of the 1024 I/O license, the “log” type tags (recorded but not visualized) and the “trend” type tags (recorded) used in the Trend viewer in log mode are not counted.



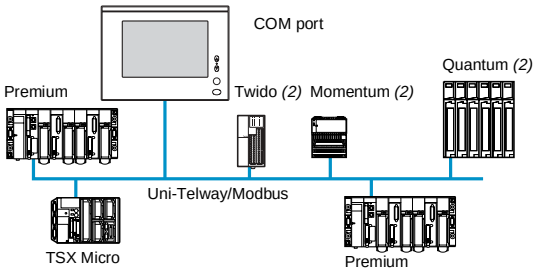
Softwares and Web servers
Vijeo Look supervisory software

Connection to Schneider PLCs

Vijeo Look supervisory software can be integrated in communication architectures for Schneider Electric control systems, as well as in third-party control system architectures *(1)*.

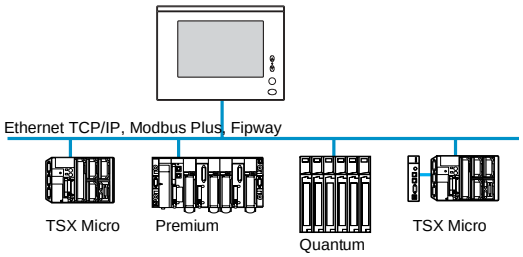
Connection to Uni-Telway/Modbus buses

Connections to the Uni-Telway or Modbus bus are made via the RS 232 serial link interface in point-to-point mode or via RS 485 in multidrop mode (PC terminal with integrated I/O port).



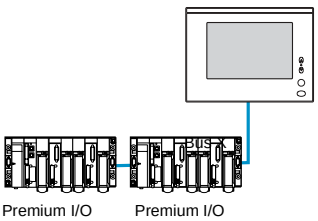
Connection to Ethernet/Modbus Plus/Fipway networks

Connections to Ethernet TCP/IP, Modbus Plus or Fipway networks are made by inserting a network card in the PC terminal:
- TCC ETH01, Ethernet TCP/IP 10BASE-T/100BASE-TX network module on PCI bus *(3)*
- TSX ETH PC 101M, Ethernet 10BASE-T network module on ISA bus *(3)*
- 416 NHM 300 30, Modbus Plus network module on PCI bus
- AM SA85 030, Modbus Plus network module on ISA bus
- TSX FPC 10M, Fipway network module on ISA bus



Connection to Premium automation platform Bus X

An Atrium coprocessor (with one of the specifications described below) must be added to the PC terminal to enable connection to the Premium platform Bus X:
- T PCX 57 203M/353M, coprocessor on ISA bus
- TSX PCI 57 204M/57 354M, coprocessor on PCI bus



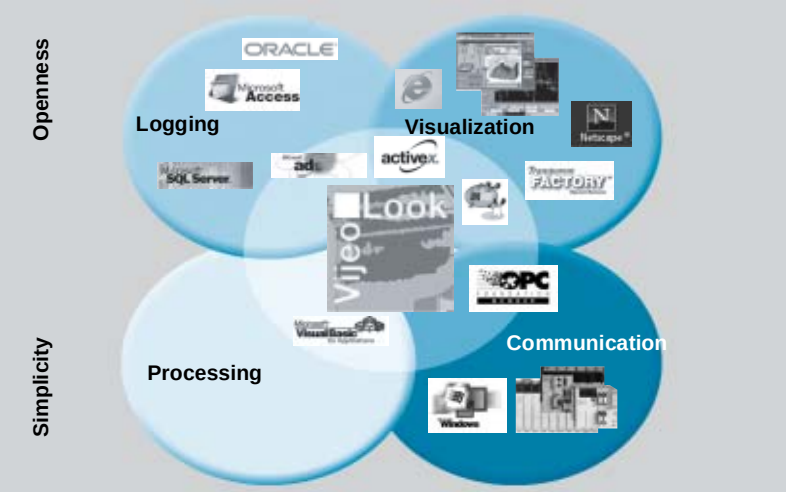
Connection to third-party PLCs

Vijeo Look is an open supervisory software. It can establish connections with the main control systems on the market using a large number of serial or network protocols *(1)*. Please consult your Regional Sales Office for further information.

(1) Only with the Vijeo Look Large 1024 I/O offer.
(2) Only with a Modbus connection.
(3) Not required if the PC has an integrated Ethernet TCP/IP port, as is the case with Magelis iPC terminals.

Softwares and Web servers
Vijeo Look supervisory software

Software structure



Communication function *(1)*

PLC tags are acquired exclusively by connecting to the PLCs via the OPC server, running OFS data server software included with Vijeo Look.
In the case of discrete and analog I/O tags from TSX Micro/Premium/Quantum PLCs (and Advantys STB/Momentum/TBX remote I/O), the acquisition process in the Vijeo Look database takes place in an implicit, transparent manner.
As an OPC server, Vijeo Look enables you to create and enhance tags, as well as make them available.

Development and visualization functions

Tags can be visualized as:
- Values
- Animated color graphics
- Recipe management
- Historical and real-time trend curves

Process supervision and control are performed in the PLCs by:
- Updating certain PLC data
- Carrying out diagnostics
- Acknowledging alarms

Diagnostics function

The diagnostics functions enables alarms to be visualized and acknowledged, regardless of whether they originate from the Premium platform "Diag Buffer" or are alarm-type OPC tags.

Embedded processing function

It is possible to embed the processing operation associated with certain steps in the process using VBA *(Visual Basic for Application)* programs.

Alarm and setpoint print function

The print function enables real-time data and logs to be printed.

Logging and traceability functions *(1)*

The values of the PLC tags selected in databases are recorded in order to meet process traceability requirements.

(1) Depending on the hardware configuration and application requirements, certain precautions need to be taken into consideration (see "Recommendations for use" page 3/22).

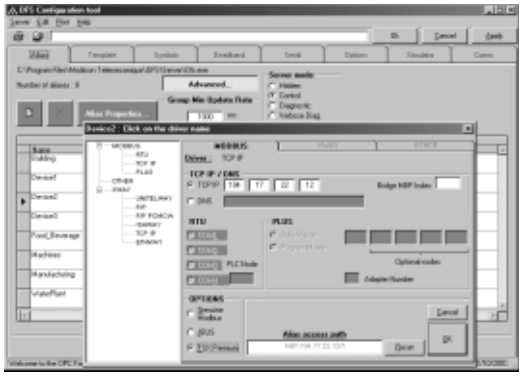
Softwares and Web servers
Vijeo Look supervisory software

Vijeo Look integrated standards

Vijeo Look is based on the following standards:

- ActiveX controls (including Web browser) *(1)*
- Java Bean components *(1)*
- OPC interface and OFS data server software for communication and exchanging data between PLCs and applications *(2)*
- Microsoft Visual Basic for Application software for data processing
- ActiveX Data Object interface for linking to the majority of databases on the market
- LapLink GOLD software for application transfer and maintenance

For further details, see page 3/21.



Communication function *(3)*

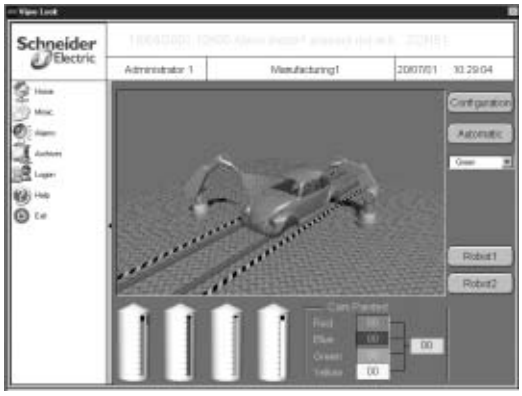
As an OPC client/server, Vijeo Look is used for local or remote transfers in real-time to acquire PLC tags and exchange data with other software applications.
In run-time, real-time data is collected via the OPC communication server giving direct access to the Vijeo Look real-time database.

Vijeo Look includes additional functions making it possible to:

- Carry out direct, explicit exchanges with Premium/Quantum PLC discrete and analog I/O (and their Advantys STB/Momentum/TBX remote I/O)
- Add up to 16 parameters of the user's choice, in addition to the OPC tag properties described in the standard
- Create OPC tag logic filters making it easy for users to select the tags they want to save in the databases
- Assign labels and threshold values to each OPC tag

(1) These 2 technologies use an object-based approach and allow you to make optimum use of the components available on the market to perform as diverse functions as sending e-mail, visualization, 3D animation, etc.
(2) Only the 1024 I/O software offer supports open access to third-party OPC servers for connecting heterogenous PLCs.
(3) Depending on the hardware configuration and application requirements, certain precautions need to be taken into consideration (see "Recommendations for use" page 3/22).

Softwares and Web servers
Vijeo Look supervisory software



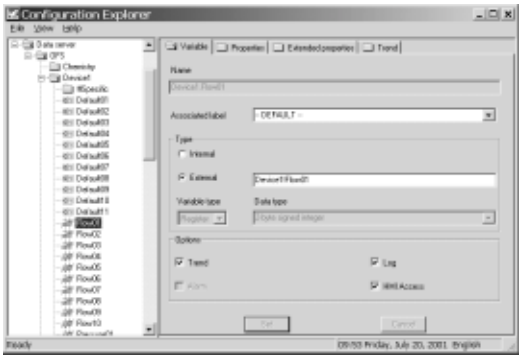
Application development and visualization

Vijeo Look provides all the elements required to develop and visualize animated mimics for PC applications.

HMI *(Human Machine Interface)*/SCADA Vijeo Look applications comprise a number of interlinked, interactive windows that provide menus, process mimics and status pages.
With the option of configuring windows on line, it is possible to make changes on the fly without the need to compile and restart the application.

A Vijeo Look supervision application is developed using the Configuration Explorer tool. The link with the PLC program is simple to establish through:

- A file containing symbols created using Unity Pro, PL7 Junior/Pro or Concept programming software
- The choice of protocol to be used for communication
- The choice of PLC address



Configuration Explorer

A configuration screen, similar to Windows Explorer, provides a structured view of the configuration used for the Vijeo Look application.
This screen makes it possible to visualize all the tags and develop the graphic interface along with its associated functions. This easy-to-use interface always offers default selections. Some of the tasks it can be used for include:

- Enhancing tags
- Scaling tags
- Configuring additional OPC servers
- Configuring databases
- “Typing” tags for multiple selection
- Generating trend group numbers
- Defining the tag recording policy for the databases
- Managing filters

It is possible via the OPC browser to select all the tags managed by the RTDS *(Real Time Data Server)* and enhance them so that they can meet application requirements (e.g. minimum and maximum values, scale, etc.).

Selecting a tag in the Configuration Explorer introduces the concept of object-oriented configuration.
All tags (whether internal or originating from the PLC) can belong to the main types of non-exclusive tag listed below:
- Human Machine Interface *(HMI)*
- Diagnostics and alarms
- Embedded processing
- Recipe management
- Logging and trends

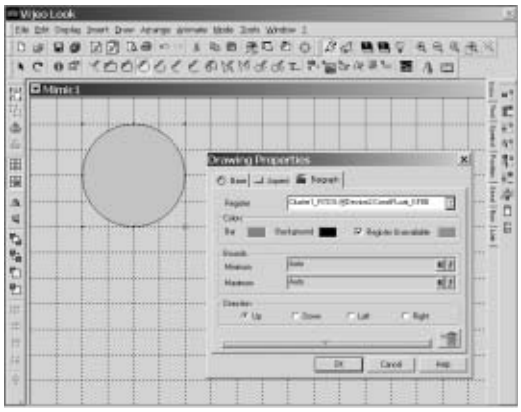
Creating graphic objects

Using its unified configuration interface, Vijeo Look allows you to simply define the required behavior for each relevant object. Functions are programmed by selecting the possible options that can be associated with each tag.

A toolset intended for creating graphic objects comes with the software, including:

- Zoom and pan functions
- Vijeo Look native drawing elements
- Graphic object libraries
- Embedded processing
- ActiveX and Java Bean containers
- Alarm, trend and browser interfaces

Softwares and Web servers
Vijeo Look supervisory software



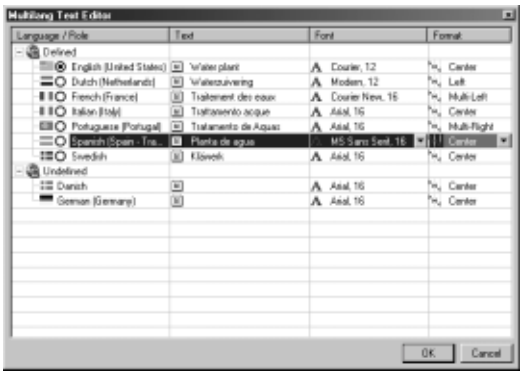
Application development and visualization (continued)

Vijeo Look native drawing elements

Vijeo Look has its own graphic editor. The animations are accessible via menu. They can be used to change the color of objects, fill their shape, exchange, move, rotate and enlarge them. The following file formats can be used: BMP, WMF, animated GIF, AVI or JPG.

The graphic objects created can be reused without the need for any specific tools. Any change to an object is automatically applied to every screen that uses this object.

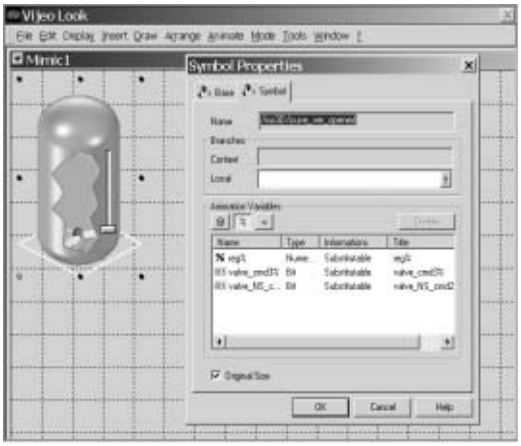
Configurable directories allow you to organize and distinguish the objects according to categories.



Multilanguage Human/Machine Interface

Vijeo Look has a text editor supporting multilanguage versions of the HMI (English, French, German, Spanish, Italian and Simplified Chinese). Any text and comments to be displayed on screen can be entered simultaneously in several languages. The language displayed can be selected:

- either in real-time according to the operator's choice
- or through a link to a user profile



Graphic object libraries

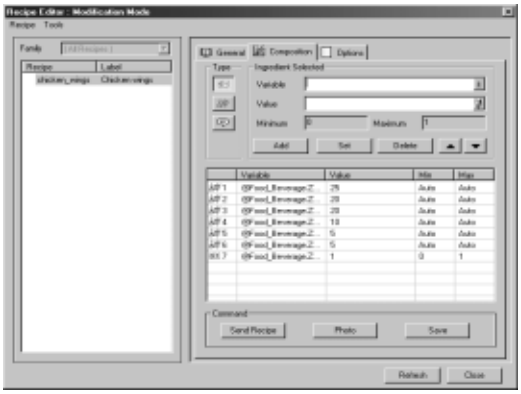
Vijeo look offers ready-to-use graphic object libraries. There are around 100 animated graphic objects available in 2D or 3D (valves, reactors, potentiometers, display units, etc.). These objects are ready to "wire" to PLC tags.

In addition to these libraries, there are also collections of more specific symbols (PID, XBT-L1000 dialog software objects, thumbnails of Schneider components, mechanical elements such as conveyors, etc.).

New graphic objects can be created in 2 simple steps:

- The object to be animated is selected
- The tag used for the animation is assigned

The newly created object can be used in several mimics.
Vijeo Look shares the same Java Beans library as FactoryCast.
Using the same graphic engine, Vijeo Look and Monitor Pro ensure a high degree of consistency for the supervisor's end-users.



Recipe management

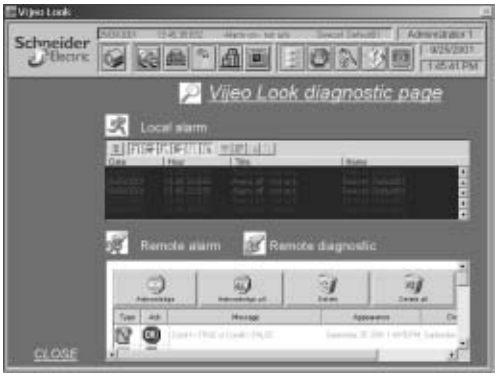
The recipe management function enables the user to:
- Create, modify and select manufacturing recipes
- Store these recipes on hard disk
- Exchange these recipes

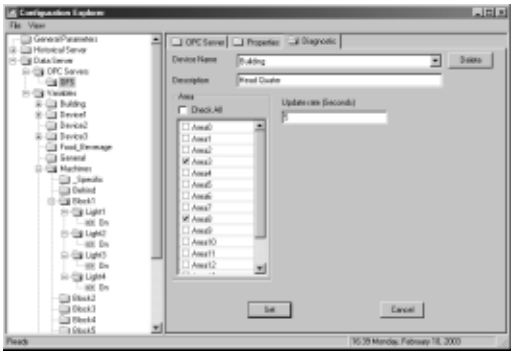
This flexibility in handling data also means a large degree of operational flexibility thanks to quick and simple changes to production instructions. Any recipe can be created based on operator dialog from internal data and or data from connected PLCs.

Functional specifications

This function can manage up to:
- 1000 recipes per project
- 1000 database elements for each recipe

Softwares and Web servers
Vijeo Look supervisory software





Diagnostics functions

Vijeo Look meets the various diagnostics requirements of PLC users by providing the alarm management and advanced diagnostics functions offered on Ethernet Transparent Ready modules (Ethernet TCP/IP network modules for TSX Micro, Premium, Quantum and Momentum automation platforms).

These options are supplemented by those offered by the Premium platform “Diag Viewer” function *(1)*. This function enables diagnostics events and alarms generated from data stored in the "Diag Buffer" to be displayed transparently. The Premium platform “Diag Buffer” is a space in the data memory managed by this platform’s diagnostics DFBs.

Managing “Diag Buffer” alarms and internal alarms

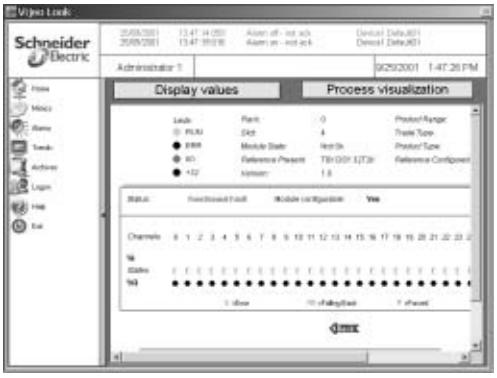
Vijeo Look enables alarms to be visualized and acknowledged, regardless of whether they are alarms from the Premium platform “Diag Buffer” or tags defined in Vijeo Look alarms.

Vijeo Look features the same diagnostics components as those used in Schneider Electric HMI or software products such as “Diag Viewer” included in PL7 Pro, Monitor Pro V7.2, FactoryCast software or in the Magelis and CCX 17 terminals. The “Diag Viewer” tool offers the operator a consistent, standardized overview of the system status.

Internal alarms are generated according to criteria specified in the Vijeo Look real-time server. The alarm function offers the following benefits:

- Criteria can be based on digital or analog values or messages
- User comments can be appended to an alarm and entered in the log
- Tag names, messages, reception status, duration, etc. can be visualized in the alarm screen
- The filter and sort functions are based on user criteria
- Alarms can be grouped by user-defined parameters (for instance, type, area, priority, etc.)

Alarms generated by “Diag Buffer” are logged and can be printed.



Transparent Ready

One of the benefits of being able to view Web pages in Vijeo Look mimics is that TSX Micro, Momentum, Premium and Quantum platforms can access the advanced diagnostics functions offered by Ethernet Transparent Ready modules.

Embedded processing function

With Vijeo Look it is possible to assign an animation written in VBA *(Visual Basic for Application)* to any graphic object. This animation can take the form of a movement, rotation, resize, link with another object, etc.

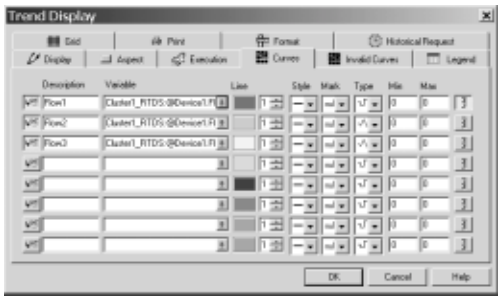
Pre-programmed functions (mouse actions, external event, mimic upload, etc.) are available in the VBA editor, making it easier to use this module for making graphic objects behave dynamically.

The VBA editor in Vijeo Look helps make process control more intelligent. Its advanced debug functions mean that scripts can be debugged quickly.

(1) Premium platform running PL7 Pro software.

Printing alarms and setpoints

This function is based on the Windows print server. This means that it can support the various types of printer (ink-jet, laser or dot-matrix). It can be used to print real-time or historical data. The print function can be activated using:
- Icons in the graphic interface viewers
- VBA application



Logging and traceability function *(1)*

All internal or external tags can be saved in a database. It is possible to select:

- The database type
- The database location
- The table name

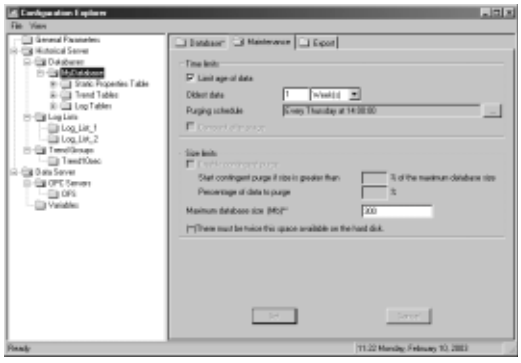
Data from the same application can be saved to different databases. This flexibility of use avoids the need to manage any data handling or transfers.

The memory space required for saving this data is minimal because of the transparent use of the relational model, i.e. the tag attributes that remain unchanged over time (descriptor, unit, etc.) are only saved once.

The log for all application events is made up of objects defined as symbols representing all data types.

Any data stored in the database can be identified in symbol form, i.e. by the names of objects such as "Valve, Pump, Flow rate, Temperature, Motor, Fault, etc.". Every change in state of a tag is monitored and flagged for processing by Vijeo Look.

Viewers are configured simply by setting the relevant parameters, without requiring any programming.



Saving and visualizing changes

All the data transiting via the Vijeo Look real-time data server can be stored either in one of the Jet Engine *(Microsoft Access)* or MSDE *(Microsoft Desktop Engine)* databases that are supplied with Vijeo Look, or in any other database available on the market (MS SQL Server, ORACLE, SYBASE, etc.).

Note: *Techncal support is only ensured for Microsoft's Data bases.*

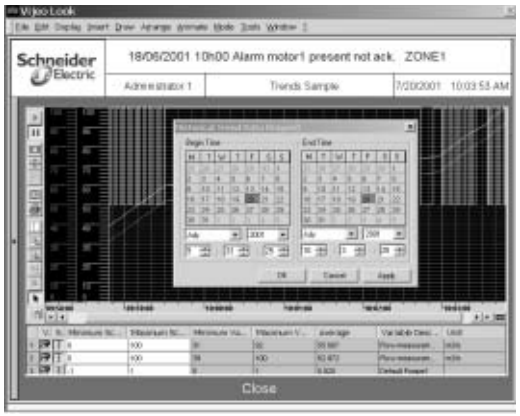
The MSDE database is configurable in the sense that it can be limited in terms of size or time (by automatically deleting the oldest data).

This archived data may be exported in CSV *(Comma Separated Values)*, ADTG *(Advanced Data TableGram)* or XML format.

States and measurements can be stored as trends. The tag values can be saved on a change of state or at regular intervals in the form of logs.

By integrating a Jet Engine and MS SQL database administration tool, you can ensure that:
- User rights are managed
- Remote databases are managed
- Data and tables supported by these databases are displayed and purged.

(1) Depending on the hardware configuration and application requirements, certain precautions need to be taken into consideration (see "Recommendations for use" page 3/21).



Logging and traceability function (continued)

Saving and visualizing trends and trend curves

The associated tags are saved in the database on a change of value or at regular intervals. Trends can be visualized in real-time or based on the data saved as one of two curve types:

- Real-time trend curves that allow you to display data from any database. The frequency with which the trend curves are updated is a configurable parameter.
- Historical trend curves that allow you to display the changes in value of a tag between two specified dates.

Furthermore, the following functions can be applied to any trend curve in run-time:

- Pan
- Zoom
- Alternation between historical and real-time mode
- Dynamic configuration

Vijeo Look can manage up to 8 separate trend curves per viewer, with their legends (automatic scale). The curves can be printed directly in BMP format from the toolbar.

If a production problem occurs the systematic logging of alarms and faults provides a simple means of diagnostics for rapid troubleshooting, thus keeping process downtime to a minimum.
Enhancing PLC data by adding specific production management parameters (e.g. a batch number, etc.) ensures that, in the event of any problem affecting the components used in the process for manufacturing the relevant product, the manufacturer can retrace the production chain.

Security

Vijeo Look offers all the security functions necessary to ensure a suitable working environment for each user profile. The HMI security interface is based on a user and profile system. Security profiles are assigned to graphic objects.

Access security is determined by:

- Identification of the user by means of a name and password
- The user profile (including the HMI display language and Vijeo Look language)
- The object category (access and display level)

Vijeo Look only allows a single connection, which means one user at a time.
The user profile should be assigned to the graphic objects (window, data entry fields, animation, etc.) that require it. Each object may have a list of authorized profiles. Objects are visible and can be modified according to the user profile. The following security categories are associated with graphic objects:

- Ergonomics, option for modifying the HMI appearance
- Drawing, option for modifying the HMI content
- Desktop, option for accessing the operating system
- Printing
- Exit, option for shutting down the application
- Zoom
- Layer, list of layers authorized for display
- Window, option for opening certain windows
- Control, option for forcing a tag value
- Production recipes

The system also offers users the option of adding additional security categories. When configuring the supervision application, it is possible to choose to use either the security system offered by Vijeo Look or the security management system offered by the station's operating system.

Vijeo Look integrated standard components

ActiveX Controls

Vijeo Look can simply integrate ActiveX control components offered by independent editors. ActiveX is a standard that enables software components to interact, either on the same machine or between two remote machines connected across a network, irrespective of the language used to develop them.

It is possible to link these properties to the real-time value of the tags from an OPC server, especially a Telemecanique OFS data server.

Website address: www.active-x.com

Java Bean components

Vijeo Look can be used to run and visualize Java Bean components. The architecture of Java Bean components makes it possible to develop networked solutions for heterogenous hardware environments and operating systems.

Software components using API *(Application Programmers Interface)* Java Beans are portable. The properties of these ActiveX Java Beans are read and edit accessible.

It is possible to link these properties to the real-time value of the tags from an OPC server, especially a Telemecanique OFS data server.

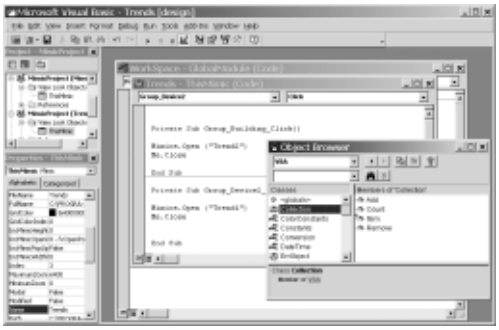
Website address: www.jars.com

OPC data server and interfaces

Vijeo Look is both an OPC server and client. The standardized OPC interface not only enables a SCADA application to communicate with PLCs, but also to exchange data with other software programs that are not linked in any way to industrial applications, but have an OPC interface.

For further information on OFS data server software and the OPC standard,
see pages 3/38 to 3/41.

Website address: www.opcfoundation.org



Vijeo Look integrated standard components (continued)

Visual Basic for Application

Vijeo Look comes with Microsoft Visual Basic for Application (VBA), making it possible to adapt generic functions to user-specific requirements.
It can be used to access:

- Methods
- Events
- ActiveX properties
- The project environment
- OPC tags
- Vijeo Look native drawing elements

VBA is the universal tool that can be used to access and modify all the properties of the set of graphic objects embedded in the mimics.

Vijeo Look and the ActiveX Data Object interface

Vijeo Look can be used to save all the tags (input, output or internal) being transferred to the database via the OPC server.
Vijeo Look is based on the ADO *(ActiveX Data Objects)* format and includes, as standard, an MSDE *(Microsoft Desktop Engine)* relational database that is accessible via the MS Access front-end (not supplied).

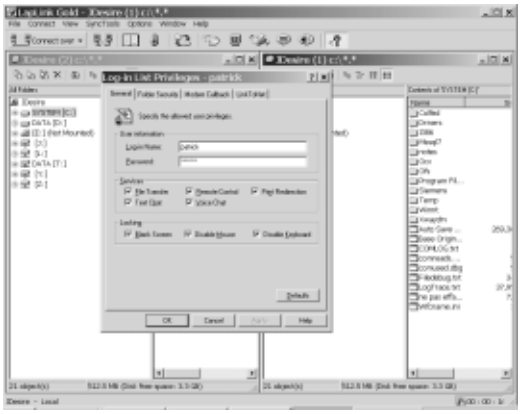
Vijeo Look can save its tags in any database with an ADO server. The ADO server can be used to manage:

- Relational and non-relational databases
- Electronic mail and file systems
- Text and graphics
- Customized business objects

The ADO server offers the following main features:

- Easy use
- Programmable cursor control
- Management of complex cursors (such as batch cursors, server-side and client-side cursors)
- Ability to return several sets of results for a single query
- Running synchronous, asynchronous or event-based queries
- Reuse of objects with or without modifying their properties
- Advanced management of the recordset cache memory
- Flexibility to adapt to different environments thanks to an interface that supports databases from all the major market suppliers
- Excellent error recovery
- High performance levels

Softwares and Web servers
Vijeo Look supervisory software



“Automation journey” project management

Vijeo Look offers a unique solution for commissioning, deploying and maintaining applications. Every Vijeo Look license type comes supplied with LapLink GOLD software developed for transferring applications and controlling them remotely.

Archiving and restoring projects

This features allows you to save the whole application (including the OPC configuration) in a single file, thus facilitating deployment of the application on run-time machines.

LapLink GOLD software

LapLink GOLD offers advanced remote maintenance services, including:

- Full control of a remote Vijeo Look station, making it possible to solve diagnostics and remote maintenance problems
- Downloading the latest versions of Vijeo Look

This solution offers the following benefits:

- A single interface capable of transferring applications or controlling them remotely, irrespective of the media used
- Added value for machines from integrators, by allowing them to offer maintenance services for their machines
- Ensuring the long-term functionality of applications in the face of Microsoft Windows operating system developments

LapLink GOLD offers the following functions:

- Exchanging data between real-time databases: reports, commands, summary information, etc.
- Use of server resources (hard disk, printer, etc.)
- Transferring files between stations without using a server
- File management services (copy, delete, rename directory, type and print)
- Triggering any transfer of real-time database elements with an event (alarm, time, calculation results, etc.)

Available with any type of Vijeo Look license, LapLink GOLD is easy to implement. Communication between the two Vijeo Look stations takes place via:

- Serial, parallel or USB ports (cable ordered separately according to type of link)
- IrDA-compatible infrared port
- Modem, as LapLink GOLD manages modems transparently (based on TCP/IP or proprietary protocols)

⚠ Recommendations for use

Vijeo Look is an open product, based on the most widely used IT standards. The choice of these technologies ensures that users of Vijeo Look will have an optimum, future-proof, open and stable solution, built from widely used software modules that are universally recognized as high-performance quality solutions.

However, although the use of these technologies in Vijeo Look is totally transparent, the open access that they offer means that users need to deploy the appropriate tools and have the necessary skills to ensure trouble-free implementation.

This applies to MSDE, a true deterministic relational database that Vijeo Look has and uses as the most effective means of storing and outputting logs, or VBA that enables any kind of task to be performed “virtually” in Vijeo Look.

⚠ Recommendations for use (continued)

For example, users are responsible for using VBA to access an MSDE database using SQL queries, regardless of the tools or documentation used.
This type of use lies outside the scope of the technical support provided by Schneider Electric, since the problems involved relate to database management rather than supervision.
Apart from the problems associated with open access, users should be well aware of the limits of these various components to ensure that Vijeo Look is suitable for the application requirements:

■ **Choice of databases** *(behavior observed and consistent with Microsoft recommendations).* Vijeo Look offers the option of storing data in a Jet Engine (MS Access engine) or MSDE (MS SQL Server 2000 engine) database,
□ the Jet Engine database is not recommended (though it is a possible option and is supported) due to its performance (limited to 800,000 records),
□ the MSDE database that can have its size and record duration parameters set in Vijeo Look is recommended for data volumes up to 2 GB (approximately 5,500,000 records),
□ for larger volumes of data, it is recommended that you use a professional database such as MS SQL Server 2000 (not supplied) and that you have it installed by experts.

■ **Limitation relating to the frequency of data acquisition**. Vijeo Look is an entry-level SCADA software application for standalone machines, which means that data acquisition, display and archiving take place on the same machine. You must therefore have reasonable expectations in terms of:
□ data acquisition frequencies,
□ the number of tags that you want to store in the database,
□ the number of alarms you want the application to process.

References

The Vijeo Look software package comes with an application CD-ROM, an X-Way driver CD-ROM and a software installation and getting started guide. The application CD-ROM contains:

■ Vijeo Look V2.5 software,
■ OFS V3.0 data server software,
■ LapLink GOLD software,
■ User guide in CHM format,
■ Demo application and multimedia self-learning tool.

In terms of the drivers required by the OPC communication server and in order to ensure a standard version for each of them, a set of X-way drivers is supplied on CD-ROM with reference TLX CD DRV 20M. It contains PC drivers for Uni-Telway, Modbus, Fipway, Fipio, Ethway, ISAway, PCIway, XIP and USB buses and networks.
The Vijeo Look Human/Machine Interface *(HMI)* and documentation are available in 6 languages (English, French, German, Spanish, Italian and Simplified Chinese). When installing the software, you can select 2 of the 6 languages available. The software allows you to switch languages at any time.
Vijeo Look includes software protection that allows you to:

■ Freely transfer the license from one PC to another via a USB key, floppy disk or network.
■ Perform a functional upgrade of the Vijeo Look license (e.g. an upgrade from the Small license to the Large license) without the need to reinstall the software.

In keeping with the standard procedure for registering Schneider Electric software, the Vijeo Look license must be registered within 21 days via the Internet, e-mail, fax or telephone.

References (continued)

PC platforms supported

Vijeo Look can run on different types of PC platforms and is capable of handling their diverse and specific features. Some of the particular functions it offers include:
■ A software keyboard (for terminals without keyboard). The layout of this keyboard is particularly suitable for 12” and 15” touch screens.
■ Keyboard shortcuts (accelerator keys) intended for terminals without any pointing device
■ Transparent management of touch screens with a feature for configuring icon sizes

Minimum and recommended PC configuration

Vijeo Look can be installed on PC workstations running the Windows 2000 Professional or Windows XP Professional operating system.
The table below shows the recommended typical and minimum configurations.

Configuration	Minimum	Recommended typical
Processor	350 MHz	500 MHz...1.8 GHz
RAM	128 MB	256 MB...1024 MB
Screen		
Resolution	800 x 600	1024 x 768
Colors	256	True color
Disk space		
System disk	200 MB	500 MB
Available for installation	50 MB	100 MB
Target disk	600 MB	4 GB

Description	Type and I/O size	Reference	Weight kg
Vijeo Look software license (version V2.5)			
Build Time/Run Time (BT/RT)	Small, 128 I/O	**VJL SMD BTS V25M**	–
	Medium, 512 I/O	**VJL SMD BTM V25M**	–
	Large, 1024 I/O	**VJL SMD BTL V25M**	–
Run Time (RT)	Small, 128 I/O	**VJL SMD RTS V25M**	–
	Medium, 512 I/O	**VJL SMD RTM V25M**	–
	Large, 1024 I/O	**VJL SMD RTL V25M**	–
Vijeo Look upgrade (version V2.5)			
Build Time/Run Time (BT/RT)	Small to Medium	**VJL UPG BTS2M V25M**	–
	Small to Large	**VJL UPG BTS2L V25M**	–
	Medium to Large	**VJL UPG BTM2L V25M**	–
Run Time (RT)	Small to Medium	**VJL UPG RTS2M V25M**	–
	Small to Large	**VJL UPG RTS2L V25M**	–
	Medium to Large	**VJL UPG RTM2L V25M**	–
Run Time (RT) to Build Time/Run Time (BT/RT)	Large, 1024 I/O	**VJL UPG RT2BT V25M**	–
Vijeo Look update (version V1/V2 to V2.5)			
Build Time/Run Time (BT/RT)	Small, 128 I/O	**VJL UPD BTS V25M**	–
	Medium, 512 I/O	**VJL UPD BTM V25M**	–
	Large, 1024 I/O	**VJL UPD BTL V25M**	–
Run Time (RT)	Small, 128 I/O	**VJL UPD RTS V25M**	–
	Medium, 512 I/O	**VJL UPD RTM V25M**	–
	Large, 1024 I/O	**VJL UPD RTL V25M**	–

Connection cables

VJL XCA● connection cables can be used to transfer HMI/SCADA applications between two Vijeo Look stations using the LapLink software.

Description	Operating System	Description	Reference	Weight kg
Serial link cable (blue)	Windows 2000, Windows XP	4 x 9 and 25-pin female SUB-D connectors 2 m long	**VJL XCAS**	–
USB link cable (gold)	Windows 98, Windows 2000 or Windows XP	2 USB connectors 1.6 m long	**VJL XCAU**	–

Softwares and Web servers
Monitor Pro V7.2 supervisory software

Presentation

Monitor Pro V7.2 is a real-time client/server SCADA (*Supervisory Control and Data Acquisition*) software solution for industrial sectors and the automation of manufacturing processes.

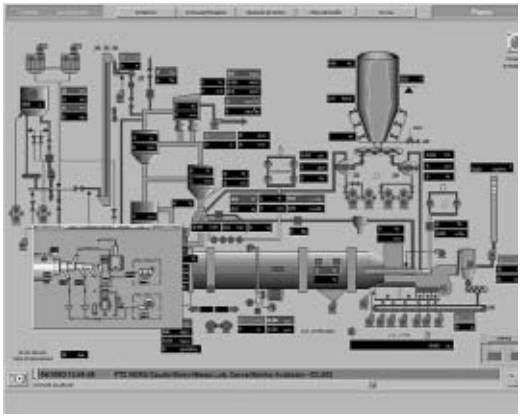
This software can be used to:
- collect typical data from your devices,
- process and analyze this data,
- display and save it,
- share it with Manufacturing Execution System.

The Monitor Pro V7.2 architecture can adapt to application requirements, whatever they are:
- client/server, with one server and one user,
- multi-client/server, with one server and several users,
- multi-client/multi-server, with several servers and several users,
- redundant setup, with 2 redundant servers and several users, ensuring high, availability for your installations.

Monitor Pro V7.2 is based on a highly flexible, scalable architecture that can be used as both a standalone SCADA interface and in a distributed environment, interfacing with your production management tools.

Monitor Pro V7.2 provides all the Schneider Electric communication protocols, as well as the SQL Server 2000 relational database. It also incorporates state-of-the-art IT technologies such as .Net Remote client.
It is this fusion of Internet-based and industrial communication technologies that makes Monitor Pro V7.2 a Transparent Ready product.

Monitor Pro version V7.2 offers native redundancy, integrated traceability functions, multilanguage functionality, and to many other functions.



Structure of the offer

Monitor Pro V7.2 is a multi-user SCADA application operating with the Microsoft Windows 2000 and Windows XP platforms. The Monitor Pro V7.2 offer is based on a client/server system capable of being extended with additional client stations:

- **Client/server system**. This system performs all the conventional operations of any SCADA system, from collecting and saving data to using it.
It is available in several sizes capable of being adapted to your requirements (ranging from 300 process I/O and 4800 tags to an unlimited system configuration). Most of the options from version 7.0 are now integrated (interface with relational databases, redundancy management, etc.).

- **One or more client stations** providing the user interface.

This offer includes 2 types of software license:
- RT/BT license (*Build Time/Run Time*) allowing the application to be built and run
- RT license (*Run Time*) allowing the application built with the RT/BT license to run

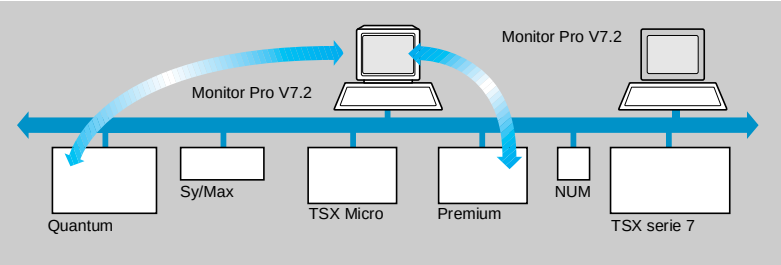
The following options are also available for the system bases, if required:
- “CML” (*Compiled Math and Logic*)
- “PAK” (*Program Access Kit*) kit for developing tasks and additional drivers
- Drivers for communicating with third-party devices
- “Power SPC” (*Statistical Process Control*)

Softwares and Web servers
Monitor Pro V7.2 supervisory software

Connection to control systems

Monitor Pro V7.2 supervisory software organizes all Schneider Electric control systems. It can be integrated into communication architectures made up of Telemecanique, NUM and third-party PLCs.
Monitor Pro V7.2 supports several protocols simultaneously, making it suitable for mixed configurations.

Schneider control systems



Monitor Pro V7.2 includes the OFS (*OPC Factory Server*) data server for interfacing with the Schneider Electric control systems.

In addition, Monitor Pro V7.2 offers Modbus TCP/IP, Modbus Plus, Fipway, Ethway connections as standard so that it can be integrated into Modbus TCP/IP or X-Way architectures.

Monitor Pro V7.2 also comes with communication drivers for the old generation PLCs (Sy/Max, April, etc.).

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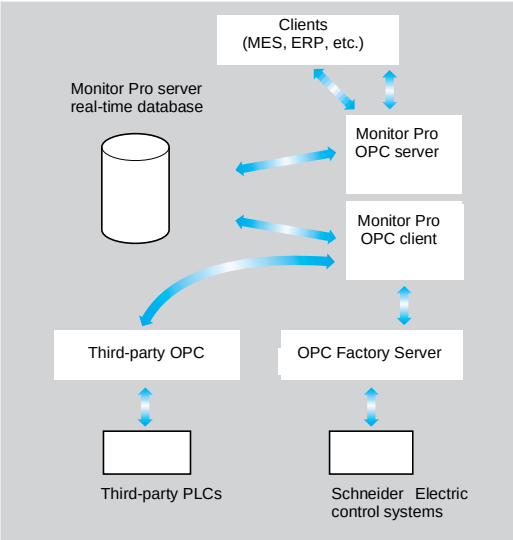


Third-party control systems

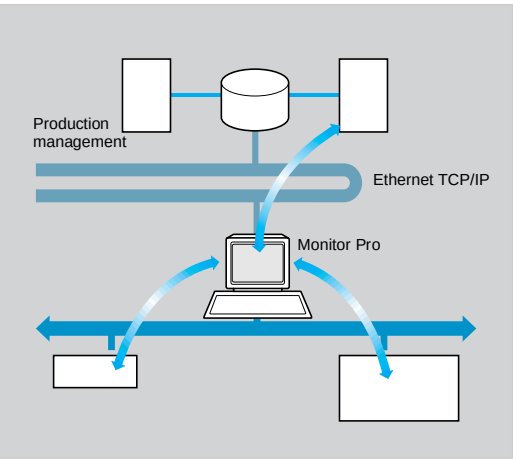
Monitor Pro V7.2 is also an open supervisory program. It can be used to establish complex connections with the main control system devices on the market, using the OPC standard (OLE for Process Control). Several OPC connections can be used in the same SCADA application.

In addition, communication drivers for the main control system devices on the market are optionally available.

Connection to MES (*Manufacturing Execution System*)

Relational databases are the preferred solution for connecting Monitor Pro V7.2 with production management software applications (MES).

This connectivity is achieved using SQL Server 2000 (supplied with Monitor Pro V7.2) or Oracle, as well as with any other ODBC (*Open Data Base Connectivity*) compatible databases.



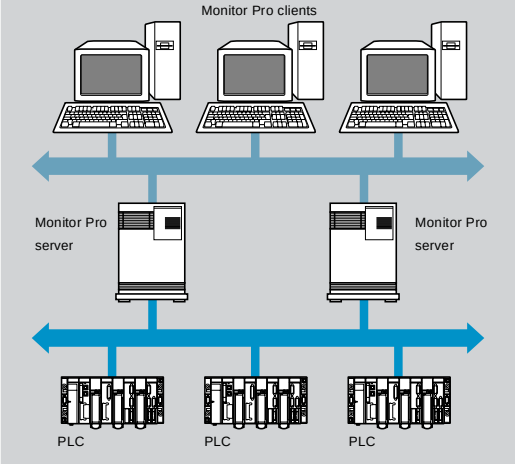
Openness of Monitor Pro V7.2 supervisory software

The openness of Monitor Pro V7.2 software is ensured by:
■ **PAK"**: a kit of documented tools for developing new Monitor Pro tasks. They can also be used for developing (additional) communication drivers. The "PAK" tool is offered as an option.
■ **OPC Server Access interface**: Monitor Pro V7.2 includes OPC Server Access for interfacing with third-party software applications.

Recommendations for use

⚠ Before capitalizing on the open-access potential offered by Monitor Pro V7.2, it is recommended you consult your Regional Sales Office to ensure that open access is achievable.

Softwares and Web servers
Monitor Pro V7.2 supervisory software

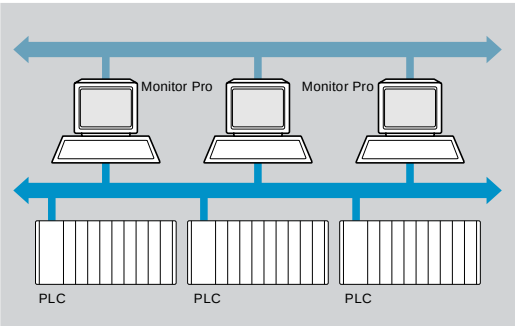


Distributed architectures

Monitor Pro V7.2 offers a wide variety of solutions for distributing application data between servers and operator terminals, whether local or remote.

Native client/server architecture

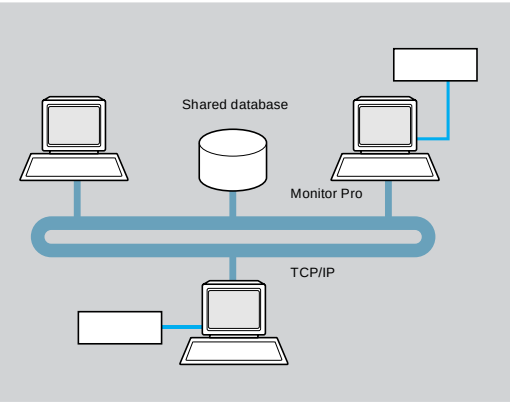
The native multi-client/multi-server architecture uses standards to provide access to the distributed and remote servers on TCP/IP networks.
Operators can access and manage data from a distributed application on multiple servers.
Given that several clients can access the same server, it is possible, for instance, for alarms and their acknowledgement to be distributed to multiple operators.
Given also that client stations are independent, it is very easy to develop local graphics without any need to modify the SCADA application on the server or on the other clients.



TCP/IP data exchanges

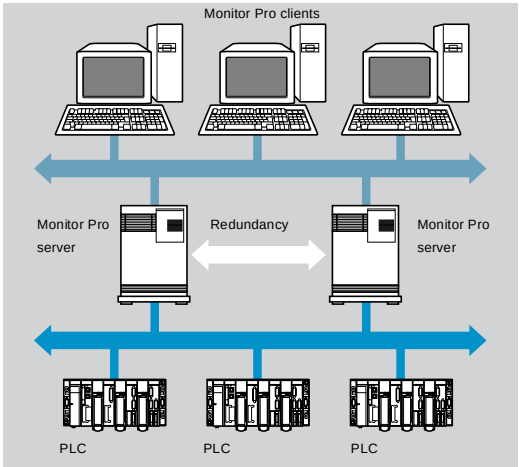
Multi-station equal access

There is a Monitor Pro V7.2 function available for synchronizing multiple servers among each other so that an identical view of the distributed application can be obtained at a large site or several locations.



Multiple client/server stations

Monitor Pro V7.2 has an integral multiple client/server station function, “VRN” (*Virtual Real time Network*), that can be used to build an application where data is shared between several supervisor stations.
Each station can be declared as a server and as a client for other stations on the network.
This function known as “VRN” provides a more responsive system with functions capable of meeting the most stringent demands from distributed SCADA applications, while also offering easier implementation.
This function is similar to FL-LAN on Monitor Pro V2.



Redundant architectures

Monitor Pro V7.2 incorporates “VRR” (*Virtual Real-time network Redundancy*) server redundancy services, ensuring the high availability of architectures.
Based on the client/server model, this redundancy setup comprises two or more servers with automatic switching when a fault occurs and with no loss of data. The client operator stations connect automatically to the active server.

A default switching strategy is offered to help set up the architecture. This can be adapted by users to meet their specific needs.

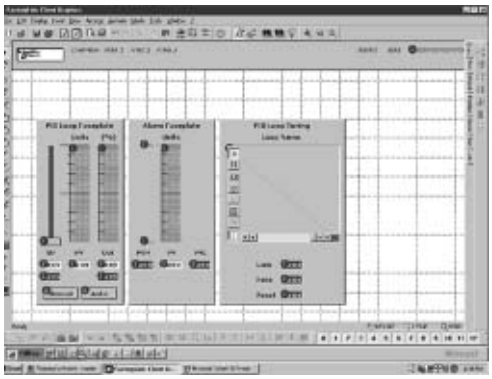
Softwares and Web servers
Monitor Pro V7.2 supervisory software

Application design

A Monitor Pro V7.2 supervisory application is designed based on the client system using two object-oriented editors:
- Client Builder, used to develop the graphic interface for the operator stations.
- Configuration Explorer, used to develop functions on the server side.

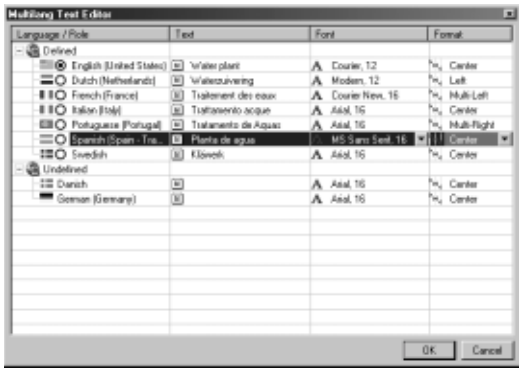
These Windows-based editors make editing and configuring Monitor Pro V7.2 functions much easier.

Note: *converting Monitor Pro V2.● applications:*
a Monitor Pro V2 application can be converted to Monitor Pro V7.2 and runs immediately, retaining the V2.● graphics (generated using the Appedit editor). In this instance, the application does not benefit from the client/server architecture. Carrying out the conversion manually makes it possible to use the new Client Builder format so that full benefit can be derived from using the powerful Monitor Pro V7.2 application.



Client Builder - mimic development

Client Builder provides a development and run-time environment that supports dynamic switching between development and run mode in order to speed up application design.
This environment offers a set of tools to help reduce the design time for SCADA applications:
- Object-oriented graphics.
- Organization of graphics in layers.
- Integration of a security function for user access to objects and commands.
- Standard Object Library.
- Tree structure. This new function, commonly known as “branching”, can facilitate the simple and secure duplication of graphic objects by merely copying the object and just changing its reference name.
- Management of user object and template library.
- Zoom and pan functions for historical trend curves.
- ActiveX and Java Bean containers.
- Ready-to use ActiveX alarm, trend and database browsing interfaces.
- VBA-compatible script integration.
- OPC Client.



Multilanguage Human/Machine Interface

Monitor Pro V7.2 has a text editor supporting multilanguage versions of the HMI. Any text and comments to be displayed on screen can be entered simultaneously in several languages. The language displayed can be selected:
- either in real time according to the operator’s choice
- or through a link to a user profile

VBA (Visual Basic for Application) script

With Monitor Pro V7.2 any graphic object can be linked to an animation written in VBA. This animation can take the form of a movement, rotation, resize, link with another object, etc.
Pre-programmed functions (mouse actions, external event, mimic upload, etc.) are available in the VBA editor, making it easier to use this module for making graphic objects behave dynamically.

The VBA editor helps make process control more intelligent. Its advanced debug functions mean that scripts can be debugged quickly.

Note: *Visual Basic scripts from previous Monitor versions can still be run.*

Application design (continued)

Configuration Explorer

Configuration Explorer provides a browser-like hierarchical view for selecting and configuring functions on the server side. Configuration Explorer supports simultaneous development of applications on a network, thus authorizing:
- a single user to access different Monitor Pro servers
- several users to configure a single Monitor Pro server simultaneously.

Tag Explorer

This Configuration Explorer function shows all the tags in the system, including those accessible via OPC.
This function supports user-defined filters. Tags can be copied from Tag Explorer to any of the system editors, thus minimizing the amount of typing and increasing application design productivity.

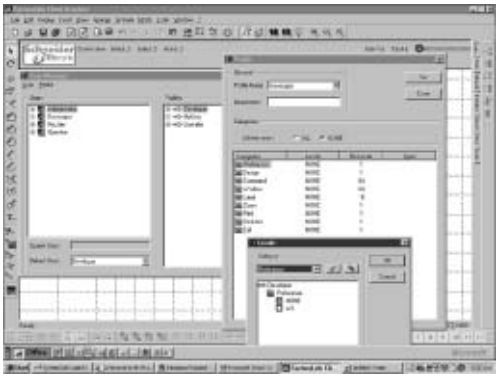
Object-oriented configuration concept

Monitor Pro V7.2 also introduces the concept of object-oriented configuration. Object-oriented configuration helps high levels of productivity to be achieved in the application development process. Any repetition in configuration is completely eliminated and design errors are reduced, resulting in the reduction of application development times and making application maintenance simpler.

Application objects can be used to build applications using a comprehensive set of predefined objects provided as standard with Monitor Pro V7.2 software. These objects model real-life components (for example, a pump or circuit breaker) and include the various SCADA functions available within the system (e.g., alarms, data logging and messages).

A SCADA application is built simply by moving the required objects to this application. When an object is added to an application, it can be configured in two ways:
- by entering configuration data (e.g., alarm limits and I/O points) via an intuitive user interface
- by loading configuration data from a variety of external data sources, including text files, Excel spreadsheets or any ODBC-compliant database. When using data from external sources, several objects can be generated with a single allocation, allowing large SCADA applications to be created automatically.

The use of object applications along with branching provides a powerful configuration environment. Object applications can be used to define classes that will then be instantiated. Only the class needs to be modified to automatically change all the instances, thus making maintenance a much simpler task. Likewise, any changes made to the symbols take effect as soon as the mimic page containing them is opened.



Security management

There are some applications that require security access management for the various operators or those providing assistance. This function provides a high-performance solution for preventing any unauthorized access to a particular mimic or to a particular graphic object in a screen.
The security setup in Monitor Pro is based on the Windows NT model where user accounts are managed with associated profiles.

The Monitor Pro V7.2 system administrator uses this tool to create user accounts (name, password), with each account then being assigned a profile. The profile determines the mimics, layers and graphic objects in a layer that users can access, according to their rights, in run-time, in edit mode or from the desktop.

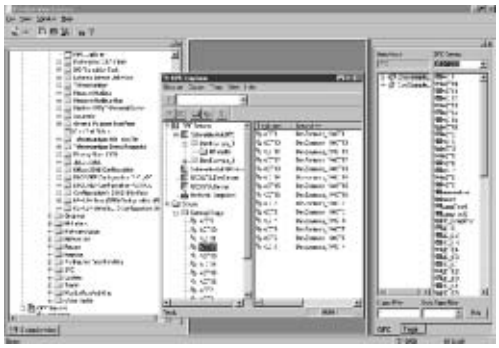
Application design (continued)

Security management (continued)

After login, users may only access the screens or graphic objects authorized by their profile. This means that current users may only interact with specific sections or the subset of the SCADA application authorized by their profile.

Profile functions and parameters:
- Management of user accounts, profiles and access levels
- Login/Logout configuration
- Profile parameters including 10 different control categories

Control categories:
- Application administration
- Edit/create application access
- Management of preferences
- Screen access level (maximum of 64 levels managed)
- Object access level (maximum of 64 levels managed)
- Layer access level (maximum of 16 layers managed)
- Zoom mode access
- Print function access
- Desktop access (locking Windows system keys: Ctrl/Esc, Alt/Tab, etc.)
- Application shutdown



Single point tag declaration

In order to increase application design productivity, Monitor Pro V7.2 offers a PLC database integration function.
This function is used to provide information to the Monitor Pro V7.2 real-time database from the PLC databases without having to re-enter tags and their attributes. This tool is used to ensure consistency in the PLC and SCADA supervisor databases.
This function is available for different types of PLC: TSX Micro, Premium, Quantum or TSX Series 7 and their respective programming tools (Unity Pro, PL7, Concept, PL7-3), via OFS (*OPC Factory Server*) or Symbol Database Linker.
The single point tag declaration tool is used to optimize communication by selecting the communication tables that will receive the imported PLC tags. A search and filter function for the various types of tag makes it easier to select the tags to be imported.

Starter applications

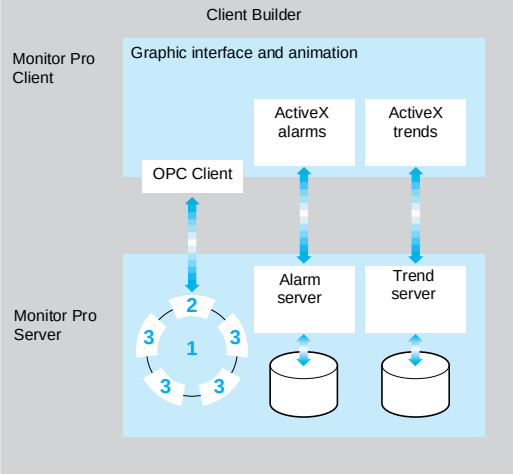
Monitor Pro V7.2 includes in the Configuration Explorer editor a starter application generator for automatically configuring Schneider Electric communication protocols.

Furthermore, the sample SCADA starter application “StarterApp” supplied with Monitor Pro V7.2 software contains sample mimics and templates providing a valuable starting point for building applications.

Run-time environment

The run-time environment comprises both server systems and client interfaces:
- The server systems collect, process and save the data, thus performing all the operations of a SCADA system.
- The clients provide the user interface and represent the different users accessing the network simultaneously. They can access any server system via the network.

Softwares and Web servers
Monitor Pro V7.2 supervisory software



1 *Real-time database*
2 *OPC Server*
3 *Tasks: calculation, reporting, ODBC interface, API communication, etc.*

Run-time environment (continued)

Server systems

The system's main feature is that all the data is stored in the real-time database 1 which permanently displays the status of the process currently running.
The real-time database is central to all tasks 3 in the process of execution. It resides in the server's RAM and acts as both a storage device and an inter-process communication mechanism. All tasks share information in the real-time database by reading from and writing to the real-time database.
Finally, the server automatically performs certain operations, such as:
- recording and generating alarms
- regularly archiving data on the trend server (historical trends database)

Clients

The client applications connect to the server systems via their OPC client interface and access the Monitor Pro real-time database.
During run-time, the clients provide interactivity between the control system and the operators with a graphic interface, alarm display and trend curves, etc.
Different clients can access the same server or multiple servers via the network, depending on application requirements. Communication between the clients and server systems takes place in real time via the OPC interface.

Real-time database for the server systems

The real-time database stored in the rapid access RAM is the heart of Monitor Pro V7.2 supervisory software. This database contains all the data coming from or going to the process being supervised and is available for supervision processing.

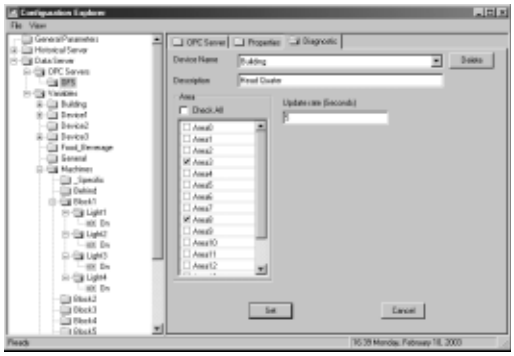
The database size is determined by the server defined by the Monitor Pro V7.2 software that is used (ranging from 300 I/O and 4800 tags to an unlimited number of I/O and tags).
This application image comprises objects defined as symbols representing binary data, single-length words (16 bits), double-length words (32 signed bits), floating point values (64 bits) and text messages (up to 256 bytes max.).
Each task can access the whole real-time database and uses this as a means of exchanging data with other tasks. This method of communication reinforces the various tasks' independence from each other.

Diagnostics function

Alarm supervisor

Alarms are generated as a condition of every element in the real-time database (bit or numeric).
The Alarm supervisor offers the following functions:
- detection, display (ActiveX), archiving and real-time printing
- detection conditions on bits or analog values
- user comments added to an alarm and entered in the log
- alarms acknowledged individually or as a group
- details of tag names, messages, acknowledgement data, duration, group, etc. displayed in Alarm Viewer (ready to use and configurable with ActiveX)
- alarm panel (ready to use with ActiveX) that can be displayed in any mimic with a maximum of three lines for the last three alarms
- real-time printing when an event appears and disappears and on return to normal
- filter and sort functions available according to user-defined criteria
- alarms grouped by user-defined parameters (for instance, type, area, priority, etc).
- distribution of alarms and acknowledgements (by a single Alarm server).

The alarm function supports parent/child relationships to prevent the generation of nuisance alarms in the event of a whole stream of faults.

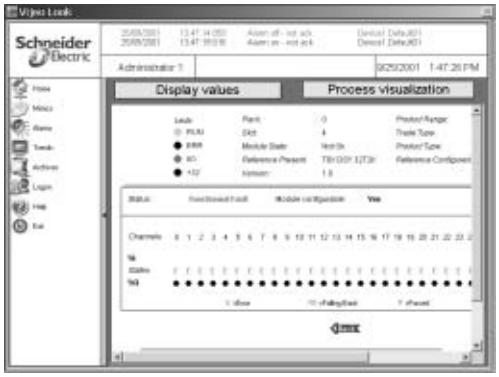


Diagnostics function (continued)

Management of “Diag Buffer” alarms

Monitor Pro V7.2 has the “Diag Viewer” interface that can be used to display in the SCADA system alarm data generated by the Premium PLCs (by the PLC system or the DFB function blocks) and stored in its diagnostics buffer. This diagnostics data is displayed using the standard Alarm manager in Monitor Pro V7.2.

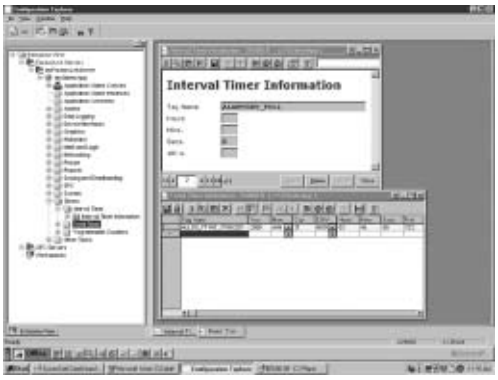
The Diag Viewer tool can be used to display the same alarm data, regardless of the display device used (Monitor Pro, Vijeo Look, Unity Pro, PL7 Pro, FactoryCast software or Magelis terminals), thus providing the operator with a consistent overview of the system’s status at every HMI level.



Transparent Ready

Displaying Web pages in the mimics offers TSX Micro, Premium, Quantum and Momentum platforms a number of benefits, including access to advanced diagnostics functions via the Web servers embedded in these products.

Event and interval timer



Event and interval timing is used to schedule events in terms of:
- absolute date/time
- periodic time intervals

This function links intervals and events with the elements in the real-time database that act as “triggers” for initializing and controlling a function of the system in run-time mode (printing a report, triggering a database entry, triggering a mathematical procedure, PLC communication, etc.).

The only limit to the number of events and intervals that can be defined is the amount of available memory. In addition, event and interval timing also updates global data used by the system (current time and date, day of the week, month and year) and it is stored as predefined system elements in the real-time database.

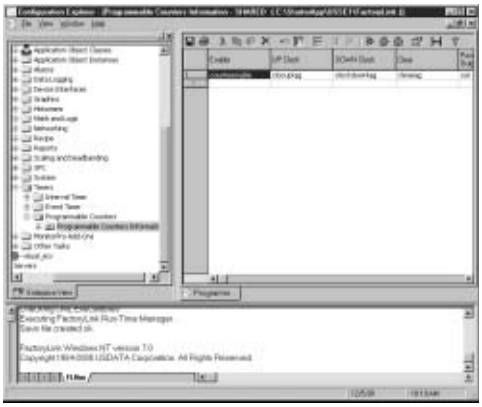
Interpreted or compiled math logic and functions

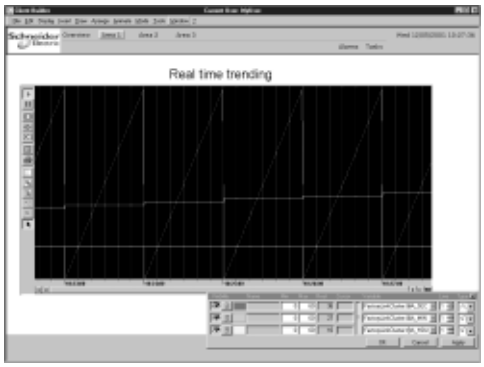
Monitor Pro V7.2 can perform various operations of a mathematical or logical nature on a combination of elements in the real-time database. Each operation is controlled by a procedure similar to BASIC, initialized by a trigger that is a user-defined tag in the real-time database.

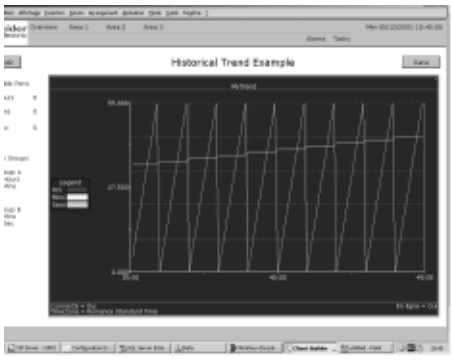
Each procedure can be run in “interpreted” or “compiled” mode. Any procedure may be switched instantly between these two development modes. This calculation function is a task that is independent from the graphic function, thus boosting its autonomy and performance. It can be used to automate a large number of tasks devolved to the SCADA system (scaling, mathematical formulae, launching external processes, etc.).

Depending on the mode:
- “Interpreted” mode is extremely easy to use thanks to a large set of math and logic instructions and the availability of the option to use system functions.
- “Compiled” mode, the “CML” option in Monitor Pro V7.2, also offers performance and an open language, as well as the possibility of directly integrating C code into the procedures. A third-party ANSI C language compiler (not supplied) is required to generate the source ANSI C code.

Softwares and Web servers
Monitor Pro V7.2 supervisory software







Programmable counters

Programmable counters can be used to perform event up/down counting operations by simply configuring the relevant parameters, thus avoiding the need to write additional scripts. They can help incorporate preventive maintenance in the run-time station and streamline PLC application programs.

Outputs from programmable counters can be used to provide inputs for other processes or trigger other events.

Trend curves

The trending function groups the “real-time” and “historical” trend functions.

It enables data from any Monitor Pro V7.2 server to be displayed graphically in order to:
- have greater control over monitored data
- easily detect any change or trend
- make comparisons
- adjust/set up a process

“Real-time” trending can be used to display tags from the Monitor Pro V7.2 real-time database.
“Historical” trending allows you to chart recorded data from the relational database historically or in real time.

One or more items of data (unlimited number) may be displayed as a trend curve in one or more trending windows (unlimited number) in each mimic.

“Real-time” or “historical” trend curves are created in Client Builder using two ready-to-use or configurable predefined objects (ActiveX control). An ActiveX control is connected in run-time mode to a relational database via the independent Trend server integrated in the Monitor Pro V7.2 system. The Trend server collects the data from the relational database and sends it to the ActiveX client.

Different ActiveX controls can be connected to different Trend servers (one per control). One Trend server may be connected to several ActiveX controls and to several relational databases.

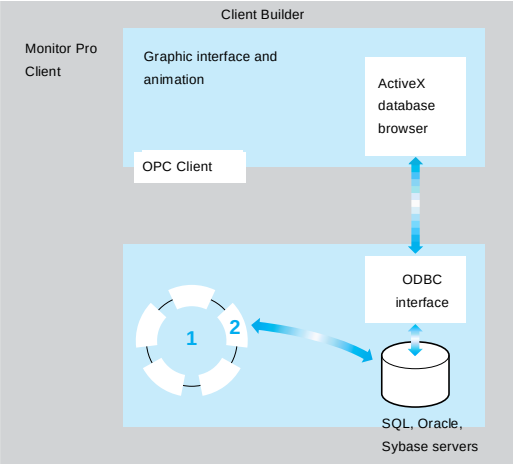
Configurable predefined parameters for trend curves

- Trend type as a function of time or an event
- Source trend server
- Sampling frequencies, stylet display frequencies
- Scrolling direction
- Stylet colors and thresholds, types of line, grid
- Multiple stylets, number of stylets limited only by legibility
- Stylet key
- Multiple configurable axes
- Alternation between historical and real-time mode
- Pan and zoom functions in historical mode
- Assignment and dynamic change of tag information and its representation on the curve
- Cursor return value, help bubble

Interaction between operator and trending

The zoom and pan functions provide detailed analyses or overviews of all the various trends. A grid can be added and a cross hair (vertical cursor moving horizontally) determines the points’ coordinates.

Softwares and Web servers
Monitor Pro V7.2 supervisory software



1 *Real-time database*
2 *Data storage task*

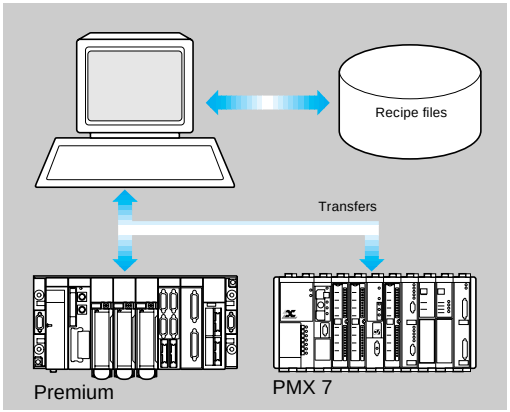
Relational database interfaces

The relational database interfaces guarantee the transfer of data between the Monitor Pro V7.2 real-time database and a relational database. They can create, write, read and update tables in the relational databases.
They manage queries from other Monitor Pro V7.2 client tasks and send them to external databases.

Monitor Pro V7.2 client tasks may include:
- Alarm archiving
- Data storage
- Database browser
- Trend logging
- SPC

SQL Server 2000, supplied with Monitor Pro V7.2, is the standard database connection tool.

The database interfaces available for Monitor Pro V7.2 are Dbase IV, Oracle, Sybase, as well as all ODBC (*Open Data Base Connectivity*) compatible databases.



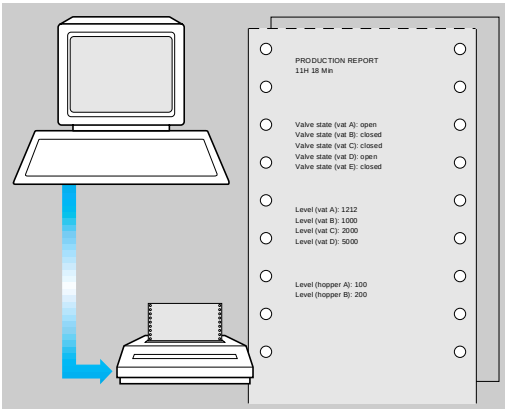
Recipe management

The recipe management function enables the user to:
- Create production recipes
- Store these recipes on hard disk
- Exchange a set of data in both directions between the database and the hard disk (recipe files).

This flexibility in handling data also means a large degree of operational flexibility thanks to quick and simple changes to production instructions. Any recipe can be created based on operator dialog from internal data and/or data from connected PLCs.

Functional specification

This function can manage up to:
- 8000 different types of recipes, each type with an unlimited number of associated files
- 8000 database elements for each type of recipe


PRODUCTION REPORT
11H 18 Min
Valve state (vat A): open
Valve state (vat B): closed
Valve state (vat C): closed
Valve state (vat D): open
Valve state (vat E): closed
Level (vat A): 1212
Level (vat B): 1000
Level (vat C): 2000
Level (vat D): 5000
Level (hopper A): 100
Level (hopper B): 200

Report generator

Any SCADA supervision or production monitoring tool should not only record variations and production status, and monitor the application, but should provide a hard copy summary of this data too.

The report generator is used to print any data in the database in any format created at the design stage. It is therefore possible, using a form defined by the user, to print up to 2000 types of document with different page layouts.

The reports can also be transmitted via the network or stored on disk in ASCII format.

Combined with the recipe management function, this function means that it is easy to keep a written record of any new recipes that can be read by any user.

Softwares and Web servers
Monitor Pro V7.2 supervisory software

Monitor Pro V7.2 software applications

The Monitor Pro V7.2 system base software licenses are intended for PC-compatible machines running the Windows 2000 Service Pack 3 or Windows XP operating system. Supplied in two languages (English and French), these licenses come in the form of a set of CD-ROMs containing:
- The system comprising a server base (RT version or BT/RT version) and a client (see description on page 3/24)
- A configurable offer that can be used to increase, during the control process, the number of clients up to 64 (also in the RT version or BT/RT version)
- OFS V2.5 data server for an OPC (OLE for Process Control) server
- The interfaces for accessing the databases via SQL Server 2000 (standard and personal editions, Service Pack 3)
- X-Way communication drivers (Fipway, Ethway, XIP, ISAway) V1.3

The bases come in 11 database sizes ranging from 300 I/O and 4800 tags up to an unlimited size. Software options, client station extensions and third-party communication drivers are available.
In the case of the databases installed in version V7.2, there are upgrade offers available to increase the database's size. For databases stored in a previous version (Monitor Pro V2.0 and V7.0), upgrade references facilitate the migration to version V7.2, thus enabling you to reap the benefit of your investment.

Monitor Pro software licenses include user manuals in electronic format (English and French).

In keeping with the standard procedure for registering Schneider Electric software, the Monitor Pro V7.2 license must be registered within the first 20 days. Each configuration is identified by a serial no. and its composition. These elements supplied with the license are required during software installation and during any required extension process (upgrades or updates).

Pre-configured system bases

I/O and tag sizes	Number of client stations *(1)*	Options *(2)*	Reference *(3)*	Weight kg
RT system bases				
300 I/O, 4800 tags	1 RT	–	**MP72 003R 000000**	–
500 I/O, 8000 tags	1 RT	–	**MP72 005R 000000**	–
1000 I/O, 16,000 tags	1 RT	–	**MP72 010R 000000**	–
1500 I/O, 24,000 tags	1 RT	–	**MP72 015R 000000**	–
3000 I/O, 48,000 tags	1 RT	–	**MP72 030R 000000**	–
5000 I/O, 80,000 tags	1 RT	–	**MP72 050R 000000**	–
8000 I/O, 128,000 tags	1 RT	–	**MP72 080R 000000**	–
15,000 I/O, 240,000 tags	1 RT	–	**MP72 150R 000000**	–
		CML	**MP72 150R 000010**	–
35,000 I/O, 560,000 tags	1 RT	–	**MP72 350R 000000**	–
		CML	**MP72 350R 000010**	–
50,000 I/O, 800,000 tags	1 RT	–	**MP72 500R 000000**	–
Unlimited I/O and tags	1 RT	–	**MP72 UNLR 000000**	–
BT/RT system bases				
1500 I/O, 24,000 tags	1 BT/RT	–	**MP72 015B 000000**	–
5000 I/O, 80,000 tags	1 BT/RT	–	**MP72 050B 000000**	–
	1 BT/RT and 1 RT	–	**MP72 050B 000100**	–
8000 I/O, 128,000 tags	1 BT/RT	–	**MP72 080B 000000**	–
15,000 I/O, 240,000 tags	1 BT/RT	CML	**MP72 150B 000010**	–
	1 BT/RT and 1 RT	–	**MP72 150B 000100**	–
35,000 I/O, 560,000 tags	1 BT/RT	CML	**MP72 350B 000010**	–
	1 BT/RT and 1 RT	–	**MP72 350B 000100**	–
50,000 I/O, 800,000 tags	1 BT/RT	–	**MP72 500B 000000**	–
Unlimited I/O and tags	1 BT/RT	–	**MP72 UNLB 000000**	–
		CML	**MP72 UNLB 000010**	–
	1 BT/RT and 1 RT	CML	**MP72 UNLB 000110**	–

(1) RT: Run Time station, BT/RT: Build Time/Run Time station
(2) CML options: Compiled Math and Logic
(3) This list is not exhaustive, consult your Regional Sales Office.

Softwares and Web servers
Monitor Pro V7.2 supervisory software

System base options and extensions

Description	For servers	Reference	Weight kg
Compiled math and logic functions	Run Time or Build Time/Run Time	**MP72 CML**	–
Development kit library for tasks and additional drivers (PAK, EDIPAK and CFGPAK)	Build Time	**MP72 PAK**	–
Statistical process control	Run Time or Build Time/Run Time	**MP72 SPC**	–

Description	For system bases	Reference	Weight kg
Client stations for extending installed bases	Run Time	**MP72 BTCAL**	–
	Build Time/Run Time	**MP72 RTCAL**	–

Third-party protocol communication driver extensions

Description	For servers	Reference	Weight kg
Siemens devices: CP525, EDI Serial (e.g. SIE), EDI H1MP S5 (Windows 2000 only, DLC protocol, e.g. SH5), 3964R-RAPD Series S5 and S7 (e.g. SIR) S5S (AP Sinec S5 via Ethernet TCP/IP protocol), SH7 and S7D, TIWAY-specific (SIR, SH5, SIE, S5S, SH7 and PRO)	Run Time or Build Time/Run Time	**MP72 SIE**	–
Rockwell devices: RAPD (including ControlNet, NetDTL, KTDTL, Async). Including old generation Async (ABA), KTDTL (AKT) and NetDTL (ADT). Requires RSLinx OEM 2.31 software, not included	Run Time or Build Time/Run Time	**MP72 RCK**	–
General Electric Fanuc devices	Run Time or Build Time/Run Time	**MP72 GEF**	–
Omron Hostlink devices	Run Time or Build Time/Run Time	**MP72 OMR**	–
FL GEM Semi-conductor devices	Run Time or Build Time/Run Time	**MP72 FLG**	–
Mitsubishi devices via MECOM protocol (serial link and Ethernet)	Run Time or Build Time/Run Time	**MP72 MEE**	–
Opto 22 devices via Optimux protocol	Run Time or Build Time/Run Time	**MP72 MOPT**	–
SECS GW devices via SECS protocol (HSMS/Ethernet link). Includes GW libraries	Run Time or Build Time/Run Time	**MP72 MEE**	–

Softwares and Web servers
Monitor Pro V7.2 supervisory software

Monitor Pro V7.2 system base upgrade

These upgrades are used to increase the database size of an existing system base. The unit reference suggested opposite can be used to migrate a system base to the next size immediately above.
Ordering x unit references means the base is extended x size levels. For instance, **4 x MP72 UPG SYS SIZE** can be used to expand an existing base from 1000 I/O and 16,000 tags to a base containing 8000 I/O and 128,000 tags. See the table below.
Important: the **serial no.** supplied with the base license must be quoted with any upgrade order.

No. of I/O		500	1000	1500	3000	5000	8000	15,000	35,000	50,000	Unlimited
	No. of tags	8000	16,000	24,000	48,000	80,000	128,000	240,000	560,000	800,000	Unlimited
300	4800	1	2	3	4	5	6	7	8	9	10
500	8000		1	2	3	4	5	6	7	8	9
1000	16,000			1	2	3	4	5	6	7	8
1500	24,000				1	2	3	4	5	6	7
3000	48,000					1	2	3	4	5	6
5000	80,000						1	2	3	4	5
8000	128,000							1	2	3	4
15,000	240,000								1	2	3
35,000	560,000									1	2
50,000	800,000										1

Description	From	Unit reference	Weight kg
1 I/O size level extension For an extension involving x size levels, order x unit references	Run Time or Build Time/Run Time server base	**MP72 UPG SYS SIZE**	–
Upgrade to Build Time/Run Time server base	Run Time server base	**MP72 UPG SYS RTBT**	–
Upgrade to Build Time/Run Time client station	Run Time client station	**MP72 UPG CAL RTBT**	–

Monitor Pro base V2.0/V7.0 to V7.2 upgrade

These packages can be used to upgrade bases running an earlier version (Monitor Pro V2.● or V7.0) to the new version V7.2.
Important: the **serial no.** supplied with the base license must be quoted with any upgrade order.

To V7.2 server base	From version V2.0	From version V7.0	Unit reference	Weight kg
300 I/O, 4800 tags	Small (64 I/O, 1024 tags) Medium (256 I/O, 4096 tags)	256 server (256 I/O, 4096 tags)	**MP72 UPD M003 SYS**	–
1500 I/O, 24,000 tags	Large (4096 I/O, 4096 tags)	1024 server (1024 I/O, 16,384 tags)	**MP72 UPD L015 SYS**	–
5000 I/O, 80,000 tags	X Large (2^{32} tags)	Enterprise Server (unlimited I/O and tags)	**MP72 UPD E050 SYS**	–
8000 I/O, 128,000 tags	X Large (2^{32} tags)	Enterprise Server (unlimited I/O and tags)	**MP72 UPD E080 SYS**	–
15,000 I/O, 240,000 tags	X Large (2^{32} tags)	Enterprise Server (unlimited I/O and tags)	**MP72 UPD E150 SYS**	–
35,000 I/O, 560,000 tags	X Large (2^{32} tags)	Enterprise Server (unlimited I/O and tags)	**MP72 UPD E350 SYS**	–
50,000 I/O, 800,000 tags	X Large (2^{32} tags)	Enterprise Server (unlimited I/O and tags)	**MP72 UPD E500 SYS**	–
Unlimited I/O and tags	X Large (2^{32} tags)	Enterprise Server (unlimited I/O and tags)	**MP72 UPD EUNL SYS**	–
To V7.2 client station	**From version V2.0**	**From version V7.0**	**Unit reference**	**Weight kg**
Run Time client	Web client	Run Time client MP CAL RT	**MP72 UPD RT CAL**	–
Build Time/Run Time client	Build Time/Run Time client	Build Time/Run Time client MP CAL	**MP72 UPD BT CAL**	–
	Web client	Run Time client MP CAL RT	**MP72 UPD RTBT CAL**	–

Configurable Monitor Pro V7.2 system bases

The document below is used for ordering a system base with x client stations (0 to 64), a software option and a third-party protocol communication interface.
If other software options and/or other third-party protocols are required they can only be ordered after the base has been registered. In the case of additional orders, quote the serial number issued by our services.
Use a separate form for each order, except where the configurations are completely identical.

Any reference in this format must be validated by our services. Please consult your Regional Sales Office.

The serial number
must be quoted for any extension, update or upgrade.

Add 10 characters to complete each reference

1 - **Number of identical configurations**		**MP72**	●	●	●	●	●●	●●	●	●
2 - **System base (includes 1 server base and 1 client)**	4800 tags, including max. 300 I/O		**0**	**0**	**3**					
	8000 tags, including max. 500 I/O		**0**	**0**	**5**					
	16,000 tags, including max. 1000 I/O		**0**	**1**	**0**					
	24,000 tags, including max. 1500 I/O		**0**	**1**	**5**					
	48,000 tags, including max. 3000 I/O		**0**	**3**	**0**					
	80,000 tags, including max. 5000 I/O		**0**	**5**	**0**					
	128,000 tags, including max. 8000 I/O		**0**	**8**	**0**					
	240,000 tags, including max. 15,000 I/O		**1**	**5**	**0**					
	560,000 tags, including max. 35,000 I/O		**3**	**5**	**0**					
	800,000 tags, including max. 50,000 I/O		**5**	**0**	**0**					
	Unlimited numbers of tags and I/O		**U**	**N**	**L**					
3 - **System base type**	BT/RT					**B**				
	RT					**R**				
4 - **No. of additional client stations**	BT/RT can only be used with a BT/RT type system base						**00…64**			
	RT							**00…64**		
5 - **Options** *(1)*	None								**0**	
	CML - Compiled math and logic functions								**1**	
	"PAK" kit for developing tasks and additional drivers								**2**	
	"CML" and "PAK"								**3**	
6 - **Third-party protocol communication interface options**	None									**0**
	Siemens									**1**
	Rockwell									**2**
	General Electric Fanuc									**3**
	Omron Hostlink									**4**
	FL GEM Semi-conductor Interface									**5**
	Mitsubishi									**6**
	Opto 22									**7**
	SECS									**8**

(1) The SPC software option **MP72 SPC** *can only be ordered following receipt of the serial number issued after the Monitor Pro V7.2 system base has been registered.*

Softwares and Web servers
OFS data server software

Presentation

OPC Factory Server *(OFS)* version 3.0 software uses the OLE for Process Control *(OPC)* standard, allowing "Client" software applications (supervisors, databases, spreadsheet programs) to access the following data:
- Internal variables (words, bits) and inputs/outputs of Modicon Premium/Quantum PLCs.
- Internal variables (words, bits) of Modicon TSX Micro PLCs, Modicon Momentum/Quantum PLCs *(1)*, TSX Series 7 and April PLCs.

OFS software is a multi-PLC data Server that enables several communication protocols to be used by providing Client application programs with a set of services for accessing the control system variables.

This software is aimed at two types of user in particular:
- “End” users who seek to develop applications on a PC and require access to PLC data. In this context, it is possible, for example, to create Client applications (supervisory control screens, Excel tables, etc.) with access to a number of PLCs connected to the PC supporting these applications.
- “Suppliers” of control system or industrial data processing products (supervision, Human/Machine Interfaces, etc.) seeking to develop, within their standard products, an OPC Client application capable of accessing data stored in PLCs via the OPC Server.

The OFS offer comprises:
- A tool for configuring the OPC Server.
- An OPC Server software application that receives requests from an OPC Client and retransmits them to the PLCs.
- Low-level drivers for communication with Modicon PLCs.
- An OPC Client enabling verification of Client/Server communication between the various connected elements.
- A simulator enabling verification of operation of one or more Clients, without a connected PLC.
- The electronic setup documentation.

(1) With Concept/ProWORX software.

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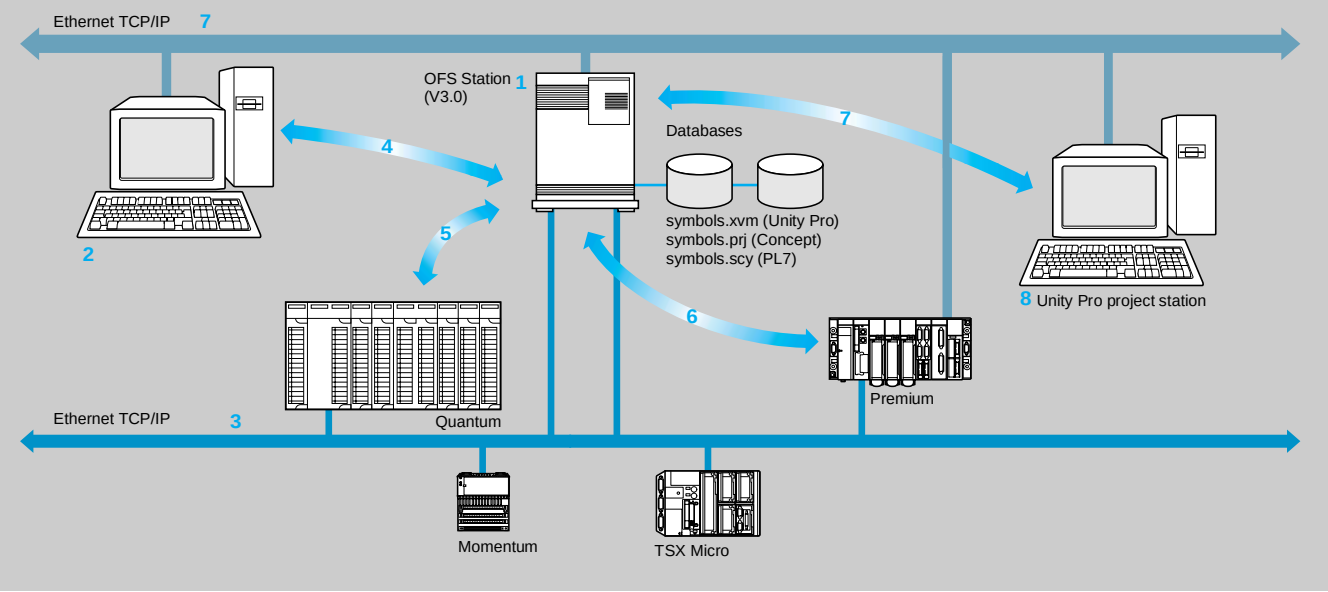
Softwares and Web servers
OFS data server software

Setup



OFS software can be integrated into control system architectures such as the one shown above:

1 PC running OFS software including the OPC Server.
2 PC running the Client application, which accesses the PLC data via OFS.
3 Communication networks linking the PC, running OFS software, with the PLCs.
4 OPC communication protocol.
5 Modbus on TCP/IP communication protocol.
6 Uni-TE on TCP/IP communication protocol.
7 OFS software program accesses Unity Pro project variables directly. Additionally, it conducts a check to verify that these variables are consistent with those of the Premium or Quantum PLC.

Depending on the usage, the Client application and OFS software can be located on the same PC or on two different PCs 1 and 2, linked by a TCP/IP Ethernet network 7.

Nota : *Depending on the software used for Modicon PLCs:*

- PL7 software generates PLC variable symbol export files. These export files (symbols.scy) should be integrated in the OPC Server.
*- Concept: the variables can be accessed directly in the project (file.prj) of the Concept application. This direct link requires Concept (version > V2.0) to be installed on the OFS station **1**.*
*- Unity Pro programming software generates export files from PLC variable symbols. These export files (.xvm symbols) should be integrated into the OPC Server when the Unity Pro project development station **8** is not accessible via the OFS station. If the Unity Pro project station is permanently accessible via the OFS station, the former exchanges directly with the variables of the Unity Pro project (via P. server).*

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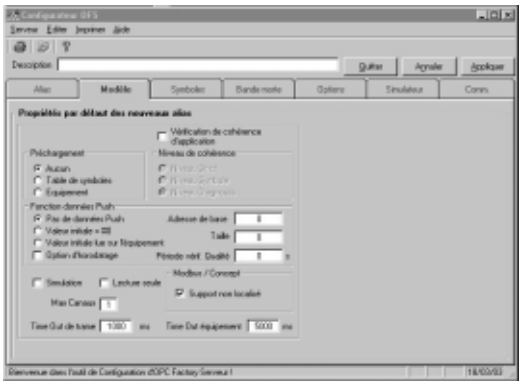
Softwares and Web servers
OFS data server software

Functions
Development of Client applications

OFS software has two interfaces:

■ OPC Automation interface.
Particularly suitable for “end” users, it enables the development of OPC Client applications in Visual Basic, in Visual Basic for Excel, but also in C++.
■ OPC Custom interface.
Used primarily by “suppliers” of automated control system or industrial IT products. It enables the development of applications in C++ in order to access the OFS software OPC Server. This interface is aimed at software development experts in particular, so that they can integrate the Client application into their standard products. This is the interface with the highest performance, in terms of access time, to data stored in the OPC Server but it requires extensive knowledge of C++ programming.



OFS software services

The various OFS software services enable:

■ Access to the Server in local or remote mode. Symbols are accessed either:
□ via an .xvm/.prj/.scy-format export file (depending on the software used),
□ or via direct access to the Unity Pro project in the case where it is accessible via the OFS station.
■ With Unity Pro software, when accessing the Unity Pro project directly, the OFS software program transparently manages the consistency of the Unity Pro project symbol database with that of the Premium or Quantum PLC. In the event of inconsistency, three types of operation are possible:
□ "strict" mode, which stops exchanges,
□ "symbolic" mode, which signals an alert to the user,
□ "debug" mode, which does not hold up debugging of the architecture.
■ Access to variables in the form of addresses or symbols.
■ Reading and writing of variables to one or more PLCs present on the communication network connected to the PC running the OFS software. These variables can be:
□ the sum of all variables belonging to the Unity Pro projects (bits, words, spreadsheets, DDT/IODDT-type compound data),
□ system variables (OPC System Group: PLC status, diagnostics, etc.),
□ internal variables representing the PLC words or registers (OPC User Group).
■ Use of a notification mechanism that transmits change of status values to the Client. Communication between the OPC Server and the PLC uses polling or can be initiated by the PLC in order to decrease the volume of exchanges (“push data”).
■ Definition of dead bands for measurement noise filtering (floating variables).

Communication with PLCs

The various variables contained in the PLCs are accessed via standard Telemecanique communication protocols using the following:

■ Uni-Telway bus and Ethernet/Fipway networks, Uni-TE protocol on TCP/IP, as well as the PCIway communication driver when TSX PCI 57 Atrium coprocessors (with Unity Pro) are used.
■ Modbus serial link, Ethernet/Modbus Plus networks and Modbus protocol on TCP/IP.

The various corresponding communication drivers are supplied in the OFS software (except Modbus Plus driver, which is supplied with the PC Modbus Plus card).

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Softwares and Web servers
OFS data server software

References

OFS software for PC compatible stations (minimum configuration: Pentium 266 MHz processor, 64 Mb of RAM) running Windows 2000 Professional or Windows XP.

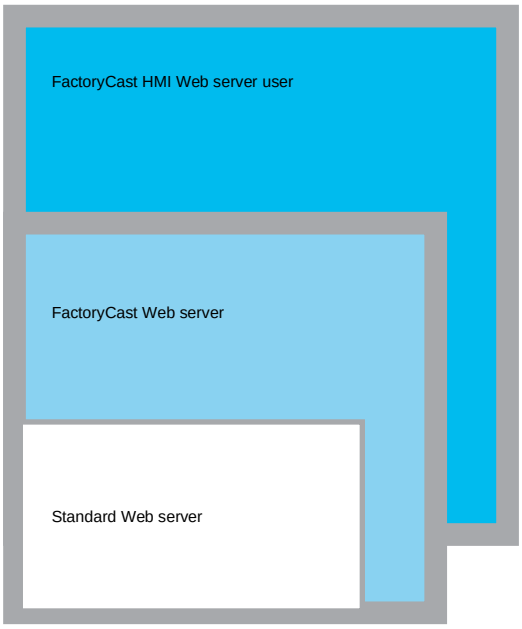
The OFS offer comprises:

- OPC Server software, compatible with the OPC Data Access 2.0 standard.
- OPC Server simulator (for debugging the application when no PLCs are present).
- A tool for configuring the Server on the PC.
- A example of OPC Client for setting up applications.
- The setup documentation on CD-Rom.

Supplied on CD-Rom, this software operates independently on a PC. Nevertheless, export files for variables generated by PL7 or ProWORX development software are required. The direct link with Concept applications requires Concept software (version > 2.0) to be installed on the same station.

Description	Function	Type of license	Reference	Weight kg
OFS data server software (version V3.0)	Enables the development of Client applications, accessing data of Premium and Quantum (with Unity Pro) via the OFS Server. Also compatible with: - TSX Micro/Premium (with PL7), - Momentum/Quantum (with Concept/ProWORX), - TSX Series 7 and April PLCs	Single station	**TLX CD OFS 30M**	–
		10 stations	**TLX CD 10OFS 30M**	–
		200 stations	**TLX CD UNOFS 30M**	–
OFS software update	Enables you to update a previous version of OFS data server software	–	Consult your Regional Sales Office.	

Softwares and Web servers
Transparent Ready, embedded Web servers
FactoryCast offer



Ethernet TCP/IP PLC module services

Presentation

In line with the Transparent Ready approach, TSX Micro, Premium, Quantum, Momentum and Advantys STB automation platforms all provide transparent access to data in realtime using Web-based technologies via their Ethernet TCP/IP or FactoryCast communication module.

The Transparent Ready communication modules in automation platforms integrate Ethernet TCP/IP services (Modbus TCP/IP messaging, SNMP network management functions, etc.) and provide the following Web functions:
- Standard Web server
- FactoryCast Web server
- FactoryCast HMI Web service

Standard Web server

Standard Web services can be used to execute diagnostic and maintenance functions on automation system installations locally or remotely using a simple Internet browser:
- PLC system and I/O module diagnostics, PLC error display ("Rack Viewer" pages ready to use).
- Display and adjustment of PLC variables ("Data Editor" pages ready to use).

The embedded Web server is a realtime PLC data server. All the data can be presented in the form of standard Web pages in HTML format and can therefore be accessed using any Internet browser that supports the integrated Java code. The standard functions provided by the Web server are supplied "ready-to-use" and therefore do not require any programming at either PLC level or at the level of the PC device supporting the Internet browser.

FactoryCast Web server

In addition to providing standard Web services, the FactoryCast Web server can be used to control and monitor automation system installations both locally and remotely. The following functions are available:
- Management of system alarms and PLC application with partial or global acknowledgment ("ready-to-use" pages for the "Alarm Viewer" function).
- Application graphics diagnostics (customized graphical views created by the user using the "Graphic Data Editor" function).
- Graphics control via animated Web pages created by the user and stored in the FactoryCast module.

FactoryCast Web servers can also be used to customize control, diagnostics and maintenance interfaces via user-defined Web pages and Web pages transferred to the module using FactoryCast configuration software (maximum available memory required is 8 Mb).

FactoryCast HMI Web server

In addition to the FactoryCast Web functions, the FactoryCast HMI Web server provides HMI Web functions, which are executed in the module itself:
- Realtime HMI database management, independent of the PLC processor
- Arithmetic and logical calculations based on HMI data
- Connectivity with relational databases
- Transmission of electronic messages (e-mail).

FactoryCast HMI is an active Web server, which can be used to execute HMI functions integrated in a PLC module. This eliminates the need for communication via polling to update the HMI/SCADA database.
In FactoryCast HMI modules, the HMI functions are executed without affecting the PLC application program and therefore the cycle time.

Softwares and Web servers
Transparent Ready embedded Web servers
FactoryCast offer

Selection of Telemecanique Transparent Ready modules *(1)*

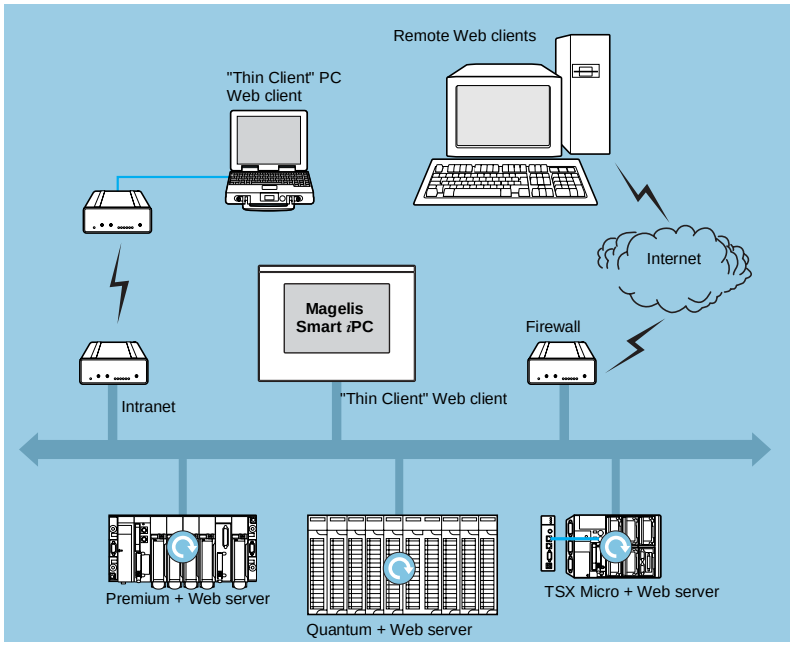
Products		Reference	Web server integrated		
			Standard Class B20	FactoryCast Class C20/C30	FactoryCast HMI Class D10
Quantum automation platform	Processors	140 CPU 651 50			
		140 CPU 651 60			
	Modules	140 NOE 771 01			
		140 NOE 771 11			
		140 NWM 100 00			
Premium automation platform	Processors	TSX P57 2623 M			
		TSX P57 2823 M			
		TSX P57 3623 M			
		TSX P57 4823 M			
		TSX P57 1634 M			
		TSX P57 2634 M			
		TSX P57 3634 M			
		TSX P57 4634 M			
		TSX P57 5634 M			
	Modules	TSX ETY 4103			
		TSX ETY 110WS			
		TSX ETY 5103			
		TSX WMY 100			
TSX Micro automation platform	Modules	TSX ETZ 410			
		TSX ETZ 510			
Momentum automation platform	M1E processors	171 CCC 960 20			
		171 CCC 960 30			
		171 CCC 980 20			
		171 CCC 980 30			
	Module	171 ENT 110 01			
Advantys STB distributed I/O		STB NIP 2212			
Altivar ATV 38/58 variable speed drive	Card	VW3 A58310			

FactoryCast is a range of PLC modules associated with their configuration software and combines the following features:
- Realtime communication functions based on Ethernet TCP/IP
- Predefined Web pages, which enable advanced installation diagnostics
- The capacity to store dynamic user-defined Web pages

(1) Electrical Distribution products of Merlin Gerin, please consult your Regional Sales Office.

Softwares and Web servers
Transparent Ready
Embedded Web servers, standard Web services

Standard Web services



"Rack Viewer" and "Data Editor" functions are supported by the Ethernet TCP/IP modules of the following:
- TSX Micro platform,
- Premium platform ,
- Quantum platform,
- Momentum platform,
- Advantys STB distributed I/Os,
- FactoryCast modules .

See module reference on page 3/43.

These functions can be accessed using a standard Internet browser connected to the network. They are "ready-to-use" and secure (password-protected).

They can be used locally or remotely via:
- Intranet,
- A modem and RAS server,
- Internet.

Softwares and Web servers
Transparent Ready
Embedded Web servers, standard Web services

Quantum hardware configuration

"Rack Viewer" PLC diagnostics function

The "Rack Viewer" function (PLC rack display) can be used for PLC system and I/O diagnostics. It displays the following in realtime:

- LED status on the front panel of the PLC
- The PLC version
- The hardware configuration of the PLC including the status of the system bits and words
- Detailed diagnostics of all I/O module channels or application-specific channels in the configuration

Premium main rack hardware configuration

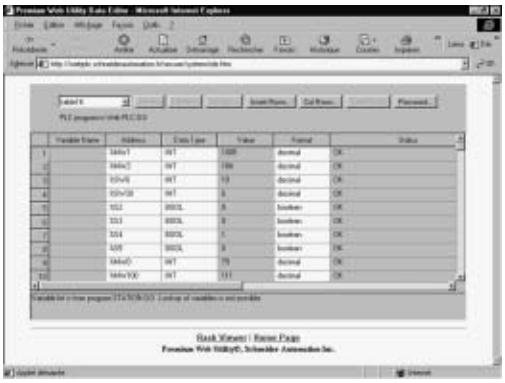
"Data Editor" read/write function for PLC data and variables

The "Data Editor" function can be used to create tables of animated variables for realtime read/write access to lists of PLC data.

The variables to be displayed can be entered and displayed either symbolically (S_Pump 234) or by their address (%MW99).

These variables only support write access if this option has been enabled using the FactoryCast configuration software. A second password must be entered and verified when writing a value to a variable.

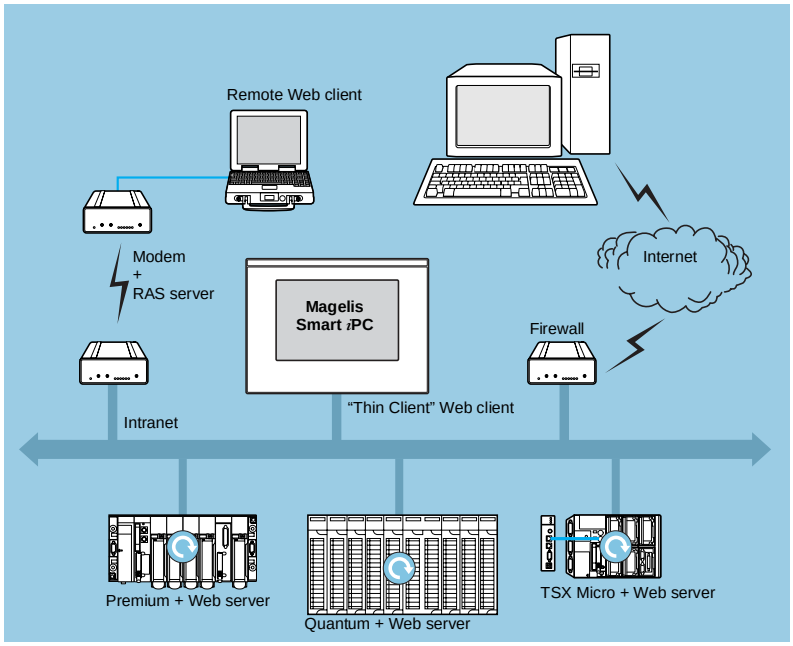
Various animation tables containing specific application variables to be monitored or modified can be created by the user and saved in the Ethernet TCP/IP module.



Variables table

Softwares and Web servers
Transparent Ready
Embedded Web servers, FactoryCast Web server

FactoryCast Web server



In addition to standard Web services, FactoryCast modules (see selection table on page 3/43) support the following functions:
- Alarm Viewer
- Creation and display of graphical views via an online graphics editor (Graphic Data Editor supplied)
- Hosting and display of Web pages created by the user

FactoryCast configuration software (supplied with FactoryCast modules) is required for the last 2 functions.

Alarm Viewer function

"Alarm Viewer" is a ready-to-use password-protected function. Based on the diagnostics buffer managed in the PLCs (specific memory area used to store all diagnostic events), this function is available with the Premium/Atrium platforms (with PL7 or Unity software) and the Quantum platform (with Unity software).

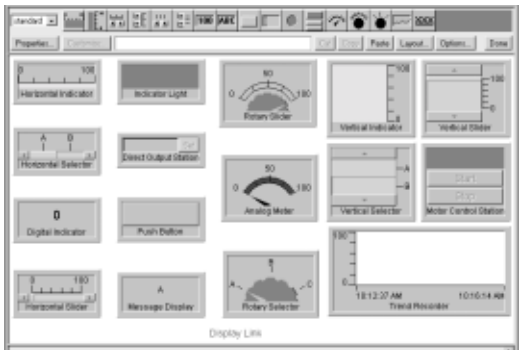
This function can be used to process alarms (display, acknowledgment and deletion) managed at PLC level by the system or using diagnostic function blocks known as DFBs (system-specific diagnostic function blocks and application-specific diagnostic function blocks created by the user).

Alarm Viewer page

The diagnostics viewer is a Web page comprising a list of messages, which displays the following information for each alarm:
- Its state
- The type of associated diagnostic function block (DFB)
- Its geographical area
- The dates and times of the occurrence/removal of a fault

FactoryCast Web server (continued)

Graphic Data Editor function



This function can be used to create graphical views online, animated by PLC variables.

These views are created using a library of graphic objects, which are predefined by simple copy/paste operations. The object parameters are set according to user requirements (color, PLC variables, labels, etc.). The graphic objects provided, which are the basic elements of the view, are as follows:
- Analog and digital indicators
- Horizontal and vertical bar charts
- Boxes for displaying messages and entering values
- Pushbutton boxes
- Functions for recording trends
- etc.

The views created can be saved in the FactoryCast modules.

These customized graphic objects can be reused in user Web pages that have been created using standard software for editing HTML pages.

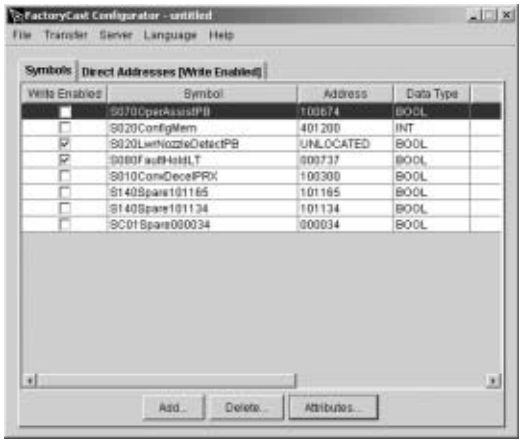
Function for hosting and displaying user Web pages

In addition, FactoryCast Web modules have 8 Mbytes of memory *(1)*, which is accessed in the same way as a hard drive and can be used to host user-defined Web pages.
These Web pages can be created using any standard tool *(2)* that enables creation and editing in HTML format. These pages can be enhanced by inserting animated graphic objects linked to PLC variables. These animated objects are provided in the Graphic Data Editor supplied with FactoryCast.

The Web pages created can be used, for example, to:
- Display and modify all PLC variables in realtime
- Create hyperlinks to other external Web servers (documentation, suppliers, etc).

This function is particularly suitable for creating graphic screens used for the following purposes:
- Display, monitoring, diagnostics
- Generation of realtime production reports
- Maintenance help
- Operator guides

Configuration software for FactoryCast Web servers



The configuration software for FactoryCast Web servers is supplied on CD-ROM with every FactoryCast module (TSX Micro, Premium or Quantum).

The software is used for the configuration and administration of the Web server embedded in these modules. The software is compatible with Windows 95/98, Windows 2000, Windows NT 4.0 and Windows XP operating systems. It offers the following functions:
- Access security management
- Definition of user names and associated passwords for accessing Web pages
- Definition of access to variables authorized for modification
- Saving/restoration of an entire website
- Transfer of Web pages created locally by the user on their PC workstation to the FactoryCast module and vice versa

(1) Memory is not affected in the event of power outages or if the PLC is reinitialized.
(2) For example, Microsoft FrontPage.

Softwares and Web servers
Transparent Ready
Embedded Web servers, FactoryCast HMI Web server

FactoryCast HMI Web services

The FactoryCast HMI range comprises two Web server modules embedded in the PLC (one for the Premium platform and one for the Quantum platform) and FactoryCast HMI application development software (to be ordered separately).

These modules have the same Web functions as FactoryCast modules, namely:
- Ethernet TCP/IP communication functions:
  - TCP/IP messaging service with Modbus TCP and Uni-TE TCP protocols
  - SNMP agent for standardized network management, which supports standard MIB II and private Transparent Ready MIB.

- Standard Web and FactoryCast services:
  - "Rack Viewer" PLC diagnostics functions, see page 3/45
  - "Data Editor" read/write functions for PLC variables, see page 3/45
  - "Alarm Viewer" alarm display functions, see page 3/46
  - "Graphic Data Editor" online graphical editor functions, see page 3/47
  - Function for hosting and displaying user Web pages, see page 3/47

FactoryCast HMI modules also provide the following specialized HMI Web services:
- Realtime database management specific to the module, combining PLC data acquisition and the management of local internal variables.

- Arithmetic and logical calculations for pre-processing data.

- E-mail with automatic transmission triggered by a specific process event.

- Connection to the SQL Server, MySQL and Oracle relational databases for archiving data for tracking or logging.

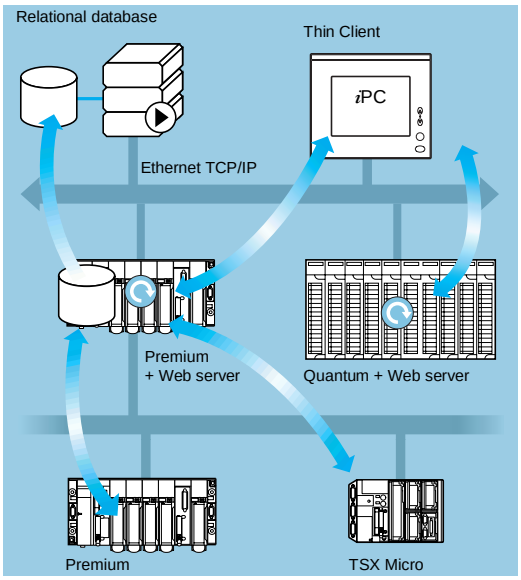
By simply setting parameters, the FactoryCast HMI application development software can be used to set up these functions in an intuitive and user-friendly way. A simulation mode, which is integrated in the software, can be used to test the operation of the FactoryCast HMI application without a module and without the need for a physical connection to a PLC, thereby simplifying debugging.

Softwares and Web servers
Transparent Ready
Embedded Web servers, FactoryCast HMI Web server

Architectures

FactoryCast HMI Web servers can be integrated in various architectures:

- Installations that require a flexible and cost-effective HMI solution
- "Hybrid" architectures supplementing conventional SCADA systems
- Architectures where a direct link is required between automation systems and information management levels (IT link).



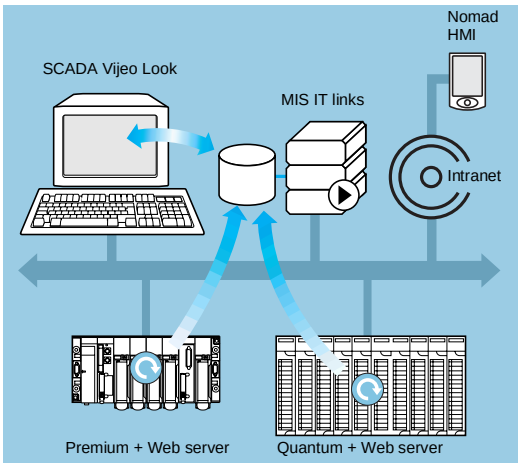
Flexible Web HMI solution

The use of Web-based technologies means that FactoryCast HMI can replace conventional HMI or SCADA solutions in applications where architectures require a flexible multistation HMI, thus providing a temporary "nomadic" remote control function.

These architectures consist of:
- Several PLCs networked on Ethernet, which have FactoryCast HMI Web server modules.
- One or more PC terminals with "Thin Client" interface equipped with a simple Web browser.
- If necessary, a relational database in which FactoryCast HMI can archive data directly from the automation system.

FactoryCast HMI modules read PLC data and execute HMI services (e-mail, interpreted calculations, connection to relational databases, updating Web pages) at source in the PLC, without affecting the PLC program or the scan time.

This solution provides:
- A reliable HMI application, which is executed at source in a robust PLC device.
- An integrated multistation interface and remote access that is easy and cost-effective to set up ("Thin Client" terminal).
- An HMI application that is easy to maintain (the application is housed in a single location on the server side).
- Preventive maintenance via e-mail.
- Greater availability of data archiving done from source.



Hybrid architectures

In this type of architecture, FactoryCast HMI supplements conventional SCADA systems. SCADA Vijeo Look or Monitor Pro software meets the requirement for centralizing information for global supervision from a central site.

Combining a FactoryCast HMI solution and a conventional SCADA solution enables:
- Simplification of the SCADA application by locating some of the SCADA processing at source, at PLC level.
- Increased availability of the traceability function due to the direct connection between FactoryCast HMI modules and relational databases.
- Powerful "ready to use" remote diagnostics capacities.
- "Nomadic" stations to be connected to the Intranet or Internet via "Thin Client" PC or PDA devices.

Functions:
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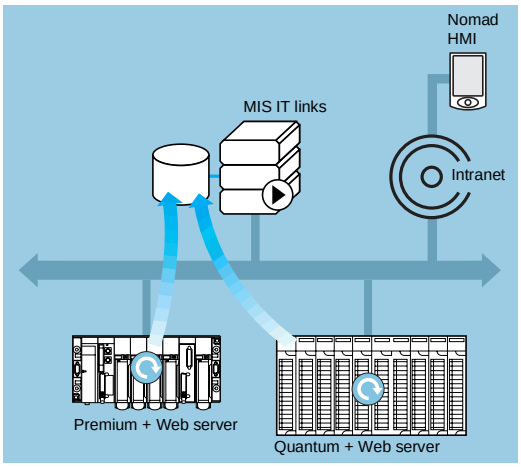
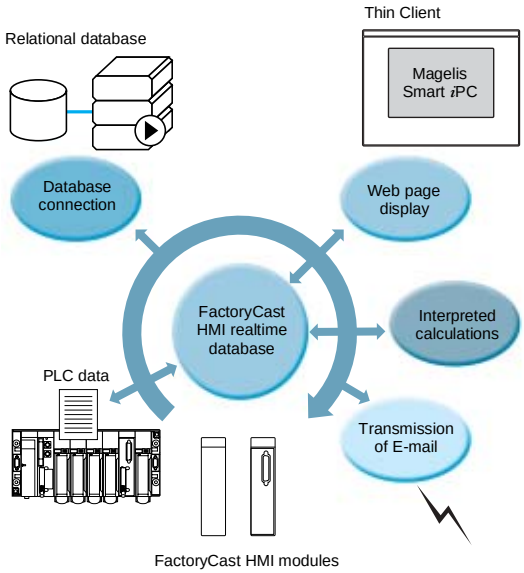
Softwares and Web servers
Transparent Ready
Embedded Web servers, FactoryCast HMI Web server



Direct links with the information management levels

In this type of architecture FactoryCast HMI eliminates the need for intermediate devices (gateways), which are expensive to install and maintain, by establishing a direct link between the automation levels and the global information management levels (MES, ERP, etc).
The PLC directly archives information from the automation system in relational databases, which allows a "collaborative" automation system to be set up, making it easier to share data in real time.

This solution results in:
- Simplified architectures
- Lower installation, development and maintenance costs
- Increased reliability of information (the data is collected at source)
- Greater availability of data archiving



Specialized HMI services

PLC acquisition and realtime database

With an internal architecture similar to that of an HMI/SCADA system, FactoryCast HMI modules manage their own variable database in realtime, independently of the PLC program. It is this variable database that is used to execute various functions, including internal processing, archiving, alarm, E-mail, etc.
Variables in this realtime database are updated using the automation system data acquisition service.
This service becomes operational once the following parameters have been set in the FactoryCast HMI software:
- Direct import of PLC variable/symbol databases (no double entry).
- Definition of the frequency of acquisition (period at which this variable is updated).

Note: *A FactoryCast HMI application running in a Premium configured FactoryCast HMI module can access also the remote PLC variables in the architecture via a transparent network (X-Way/Uni-TE transparent protocols).*

Characteristics:
- Maximum number of I/O variables per application: 1000 variables from PLCs
- Maximum number of internal variables per application: 100
- Acquisition frequency: 500 ms, minimum

Description:
page 3/53
Characteristics:
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Specialized HMI services (continued)

E-mail transmission

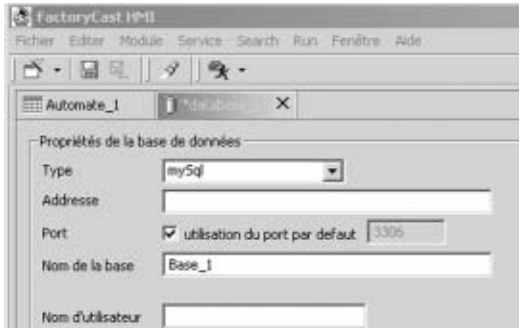
The FactoryCast HMI module can, on a specific event, send e-mail completely autonomously to a predefined list of e-mail addresses. This function is executed independently of the PLC program.

The event that triggers the e-mail may be associated with the following:
- A PLC variable (I/O, internal variable)
- An alarm, a threshold overshoot
- A machine or process state
- An operator action, etc.

When an e-mail is sent to a destination e-mail address, it must pass through an SMTP *(Simple Mail Transfer Protocol)* server. This server receives the e-mail and waits for the recipient to acknowledge it. The e-mail service is compatible with all SMTP servers. A return address can be defined should delivery to the destination address fail.

Characteristics:
- Configuration of the SMTP server: Compatible with all SMTP servers
- Maximum number of e-mail: 100
- Contents of e-mail messages: Free text with embedded dynamic variable values (from the PLC) and hypertext links (unlimited)

Connection to relational databases



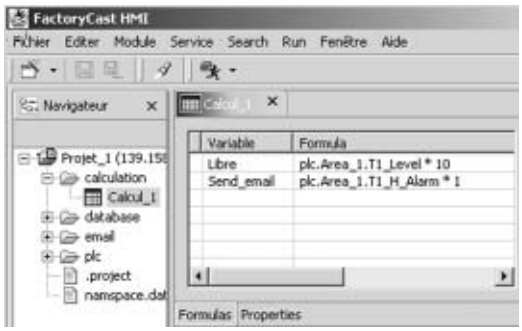
The FactoryCast HMI module can be connected directly and completely autonomously to the following remote relational databases:
- SQL Server
- MySQL
- Oracle

This connection enables all internal or process data to be archived so that it can be logged and traced.

The data can be archived (written) periodically and/or on a specific event. These variables can either be from PLCs (I/O bits, internal bits, internal words and registers) or local to the module. The FactoryCast HMI "Roll Over" function checks the size of tables by managing the maximum number of records. This circular data archiving function automatically deletes the oldest data and can be accessed by simply setting parameters in the FactoryCast HMI software.

Characteristics:
- Number of databases that can be connected: 3
- Number of tables that can be written per database: 10, maximum
- Number of columns per table: 50, maximum
- Type of database supported: Oracle, SQL Server and MySQL
- Automatic table creation: The FactoryCast HMI server automatically creates a table in the database if one does not already exist

Calculation functions



The FactoryCast HMI server can carry out various arithmetic and logical operations on a combination of variables from the HMI database and does this independently of the PLC processor. These calculations include, for example, scaling, formatting, logic processing for event triggering, etc.

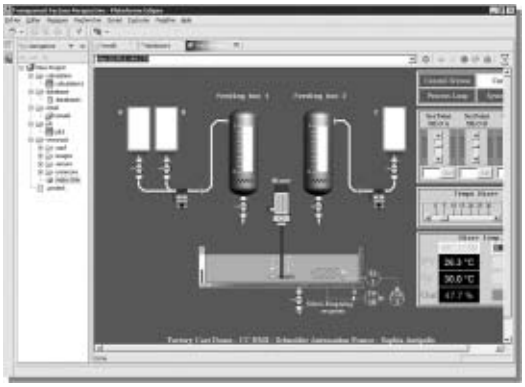
This calculation function is provided in the form of spreadsheets where the formulae are defined in cells. The spreadsheets are interpreted and processed by the server. The result of each formula is associated with a new internal variable. The processing of each spreadsheet is initiated by a trigger.

Softwares and Web servers
Transparent Ready
Embedded Web servers, FactoryCast HMI Web server

FactoryCast HMI application development software

FactoryCast HMI application development software, referenced TLX CD FCHMI V1M, provides multiproject management and complete control of FactoryCast HMI applications, during both the development and the debugging phases, thanks to the online mode and simulation mode (operational when the system is offline) options.

This software enables the intuitive and user-friendly setup of HMI functions by simply setting parameters using a tree structure of the application and can be used for complete management of the Web site:



■ Setting parameters for HMI functions:
□ Configuration of PLC interfaces: Import symbol databases and set parameters for the acquisition period
□ Configuration of spreadsheets
□ Configuration of E-mail
□ Configuration of connections to databases

■ Management of the Web site:
□ Management of the Web site tree structure (creation/deletion of HTML folders and files)
□ Management of default Web site pages
□ Management of user Web site pages *(1)*
□ Graphic object editor for animating Web pages
□ Launch of the system editor for HTML pages (FrontPage or similar)
□ Up/downloading/comparison of Web pages in online mode
□ Debugging of Web pages in online mode or in simulation mode (including animations and Java beans)

■ Simulation mode
The application and the Web site (including animations and Java beans) can be debugged in either online or simulation mode, which enables operation to be tested without a FactoryCast HMI module and without a physical connection to a PLC, thus simplifying debugging.

An integrated graphics editor in the FactoryCast HMI software can be used to easily customize the following graphic objects: bar charts, gauges, LEDs, curves, cursors, operator input fields, alphanumeric display fields, buttons, etc.
User Web pages are created graphically using an external HTML editor (FrontPage or similar, not supplied).
FactoryCast HMI includes a plug-in for FrontPage 2000. This plug-in makes it easier to set up animations, which enable PLC variables to be accessed in realtime in the HTML pages created by the user. They are created in the HTML editor by simply inserting customized graphic objects (FactoryCast Java beans).

(1) Creation of user Web pages: User Web pages created in the FactoryCast HMI environment are actual animated supervision screens and can be used to monitor your process. Based on HMI Web technology, they enable realtime access to PLC variables thanks to the FactoryCast graphic objects library (FactoryCast Java beans).

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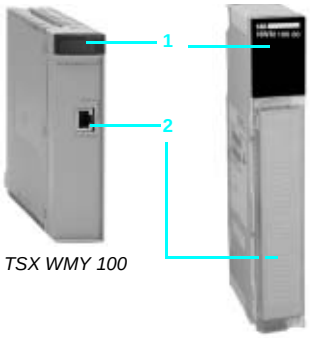
Softwares and Web servers
Transparent Ready
Embedded Web servers, FactoryCast HMI Web server

Description



TSX WMY 100

140 NWM 100 00

The TSX WMY 100 (for Premium platform) and 140 NWM 100 00 (for Quantum platform) modules are equipped with the following on the front panel:

1 A display block, which indicates the module status and the transmission status of the Ethernet TCP/IP network.
2 An RJ45 connector (with Premium/Quantum) and an MTRJ connector for a 100BASE-FX interface (with Quantum).

To be ordered separately: Accessories and connecting cables, see Ethernet ConneXium wiring system (see catalogue "Modicon Premium automation platform and PL7 software").

Characteristics

FactoryCast HMI module type		TSX WMY 100	140 NWM 100 00
Modicon automation platform		Premium	Quantum
Communication services			
Interface		10BASE-T/100BASE-TX	100BASE-TX and 100BASE-FX
Connection type		Point-to-point connection (via a standard RJ45 connector), which enables the formation of a (10BASE-T/100BASE-TX) star network (the stations are linked to ConneXium hubs or switches).	
Number of stations		64 stations maximum per network	
Transmission speed		10/100 Mbit/s with automatic speed recognition	
Ethernet communication services			
Network management		SNMP agent, supports standard MIB II and private Transparent Ready MIB	
TCP/IP services	Uni-TE	□ Client/server mode □ Client/server requests of 256 bytes (synchronous mode) □ Client/server requests of 1 K byte (asynchronous mode)	–
	Modbus	□ Client/server mode □ Asynchronous requests of 256 bytes	
X-Way services		□ X-Way inter-network routing □ X-Way/Uni-Telway routing □ Module diagnostics	–
Web server services			
Embedded Web server	Standard services	□ "Rack Viewer" PLC diagnostics □ "Data Editor" access to PLC data and variables	
	FactoryCast services	□ "Alarm Viewer" alarm display □ "Graphic Data Editor" graphic object editor □ Display of user Web pages (8 Mb available)	
	FactoryCast HMI services	□ HMI database (1000 variables, maximum) □ E-mail transmission (100, maximum) □ Connection to SQL Server, MySQL and Oracle databases: connection to 3 databases max., 10 tables maximum in write mode per database; □ Interpreted arithmetic and logical calculations □ Simulator for debugging the HMI application offline	

References

TSX WMY 100

140 NWM 100 00

Ethernet TCP/IP Transparent Ready modules

Embedded Web server	Name and description	Speed	Reference	Weight kg
FactoryCast HMI	FactoryCast HMI Premium module	10/100 Mbit/s	**TSX WMY 100**	0.340
	FactoryCast HMI Quantum module	100 Mbit/s	**140 NWM 100 00**	-

FactoryCast HMI installation software (to be ordered separately)

Name and description	Use	Operating system	Reference	Weight kg
Multilingual FactoryCast HMI *(1)*	Development and debugging of the HMI application	Windows 2000, Windows XP	**TLX CD FCHMI V1M**	0.340

(1) Includes documentation in electronic format.

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In some countries, certification of certain electrical components is enforced by law. A standard conformity certificate is then issued by the official organization. Each certified product must carry approval symbols when enforced.
Use on board merchant navy vessels generally requires prior approval (= certification) of an electrical device by certain marine classification authorities.

Key	Certification body	Country
CSA	Canadian Standards Association	Canada
C-Tick	Australian Communication Authority	Australia
UL	Underwriters Laboratories	USA

Key	Classification authority	Country
ABS	American Bureau of Shipping	USA
BV	Bureau Veritas	France
DNV	Det Norske Veritas	Norway
GL	Germanischer Lloyd	Germany
GOST	Institut de recherche Scientifique Gost Standardt	C.I.S., Russia
LR	Lloyd's Register	United-Kingdom
RINA	Registro Italiano Navale	Italiy
RMRS	Register of Shipping	C.I.S.

The table below shows the situation as of the 01.05.2002 for certifications obtained or pending from organizations for base PLCs. An overview of certificates for Telemecanique products is available on our Internet web site :
www.telemecanique.com

Product certifications

	Certifications					
Certified / *Pending certification*	**UL**	**CSA**	C-Tick **ACA**	**SIMTARS**	**GOST**	**Hazardous locations** Class 1 Div 2 *(1)*
	USA	Canada	Australia	Australia	CEI, Russia	US
Advantys STB	■					■
CCX 17	■					
Lexium MHD/BPH	■	■				
Magelis iPC	■					■
Magelis XBT-F/FC	■	■	■			
Magelis XBT-G/H/P/E/HM/PM	■	■				
Momentum	■	■	■			
Nano	■	■	■		■	
Premium	■	■	■	■	■	■
Quantum	■	■	■		■	■
TBX	■	■	■			
Telefast 2	■	■				
TSX Micro	■	■	■	■	■	■
TSX/PMX 47 à 107	■	■			■	■
Twido	*(2)*					
Twin Line	■					

(1) ***Hazardous locations****: CSA 22.2 no. 213, certified products are suitable for use in Class I, division 2, groups A, B, C and D or non-hazardous locations only.*
(2) cULus north-american certification (Canada and US).

Local certifications		
BG	Germany	TSX DPZ 10D2A safety module (TSX Micro) TSX PAY 262/282 safety modules (Premium)
AS-Interface	Europe	TSX SAZ 10 master module (TSX Micro) TSX SAY 100/1000 master modules (Premium) TBX SAP 10 Fipio bus/AS-Interface bus gateway

Technical information
Automation product certifications
Community regulations

Marine classification

	Marine classification authorities						
Certified / *Pending certification*	ABS	BV	DNV	GL	LR	RINA	RMRS
	USA	France	Norway	Germany	Unit.-Kingdom	Italiy	C.I.S.
Advantys STB							
CCX 17							
Lexium MHD/BPH							
Magelis iPC							
Magelis XBT-F/FC							
Magelis XBT-H/P/E/HM/PM							
Momentum							
Nano							
Premium							*(1)*
Quantum							
TBX							
Telefast 2							
TSX Micro							
TSX/PMX 47 à 107							
Twido							
Twin Line							

(1) Unity processors, pending certification.

Community regulations

European directives

The opening of European markets implies a harmonization of regulations in the various European Union member states.
European Directives are documents used to remove obstacles to the free movement of goods and their application is compulsory in all states of the European Union.
Member states are obliged to transcribe each Directive into their national legislation and, at the same time, to withdraw any conflicting regulations.
The Directives, particularly those of a technical nature with which we are concerned, only set objectives, called “general requirements”.
The manufacturer must take all necessary measures to ensure that his products conform to the requirements of each Directive relating to his equipment.
As a general rule, the manufacturer affirms that his product conforms to the necessary requirements of the Directive(s) by applying the CE label to his product.
CE marking is applied to Telemecanique products where relevant.

The significance of CE marking

■ CE marking on a product means that the manufacturer certifies that his product conforms to the relevant European Directives ; it is necessary in order that a product which is subject to a Directive(s) can be marketed and freely moved within the European Union.
■ CE marking is intended solely for the national authorities responsible for market regulation.

For electrical equipment, only conformity of the product to standards indicates that it is suitable for use, and only a guarantee by a recognised manufacturer can ensure a high level of quality.
One or more Directives, as appropriate, may apply to our products, in particular :
■ The Low Voltage Directive 72/23/EEC amended by Directive 93/68/EEC : CE marking under the terms of this Directive is compulsory as of 1 January 1997.
■ The Electromagnetic Compatibility Directive 89/336/EEC, amended by Directives 92/31/EEC and 93/68/EEC : CE marking on the products covered by this Directive has been compulsory since 1 January 1996.

The system designer must use devices external to the SCADA to protect against active faults, which are not indicated and are judjed to be dangerous to the application.
This may require solutions from various different technologies such as mechanical, electromechanical, pneumatic or hydraulic devices (for example, directly wiring a limit switch and emergency stop switches to the coil of a movement control contactor).

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Afghanistan	Contacts are assured by	**Schneider Electric India**		
Albania	Contacts are assured by	**Schneider Electric Austria**		
Algeria	■ Schneider Electric	voie A Lot C22 Zone industrielle Rouiba - Alger	Tel. : +213 21 92 97 02 à 09 Fax : +213 21 92 97 00 à 01	
Andorra	Contacts are assured by	**Schneider Electric France**		
Angola	Contacts are assured by	**Schneider Electric South Africa**		
Anguilla	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Antartica	Contacts are assured by	**Schneider Electric Brazil**		
Antigua & Barbuda	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Argentina	■ Schneider Argentina	Viamonte 2850 - 1678 Caseros (provincia Buenos Aires)	Tel.: +54 1 716 88 88 Fax: +54 1 716 88 33	**www.schneider-electric.com.ar**
Armenia	Contacts are assured by	**Schneider Electric Russian Fed.**		
Aruba	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Australia	■ Schneider Electric (Australia) Pty. Limited	2 Solent Circuit Norwest Business Park Baulkham Hill _ NSW 2153	Tel.: +61 298 51 28 00 Fax: +61 296 29 83 40	**www.schneider.com.au**
Austria	■ Schneider Austria Ges.m.b.H.	Birostrasse 11 1239 Wien	Tel.: +431 610 540 Fax: +431 610 54 54	**www.schneider-electric.at**
Azerbaijan	Contacts are assured by	**Schneider Electric Russian Fed.**		
Bahamas	■ Schneider Electric	Union Village PO Box 3901 - Nassau	Tel. : +1 242 327 42 91 Fax : +1 242 327 42 91	**www.squared.com**
Bahrain	■ Schneider Electric	Floor 1 - Juma Building Abu Horaira Avenue PO Box 355 - 304 Manama	Tel.: +97 322 7897 Fax: +97 321 8313	
Bangladesh	Contacts are assured by	**Schneider Electric India**		
Barbados	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Belarus	■ Schneider Electric Industries SA	Prospect Macherova 5, of. 202 220004 Minsk	Tel. : +375 172 23 75 50 Fax : +375 172 23 97 61	
Belgium	■ Schneider Electric nv/sa	Dieweg 3 B - 1180 Brussels	Tel.: +3223737711 Fax: +3223753858	**www.schneider-electric.be**
Belize	Contacts are assured by	**Schneider Electric USA**		
Benin	Contacts are assured by	**Schneider Electric Ivory Coast**		
Bermuda	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Bhutan	Contacts are assured by	**Schneider Electric India**		
Bolivia	Contacts are assured by	**Schneider Electric Chile**		
Bosnia and Herzegovina	Contacts are assured by	**Schneider Electric Croatia**		
Botswana	Contacts are assured by	**Schneider Electric South Africa**		
Bouvet island	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Brazil	■ Schneider Electric Brazil Ltda.	Avenida Das Nações Unidas 23223 Jurubatuba - CEP 04795-907 São Paulo-SP	Tel.: +55 55 24 52 33 Fax: +55 55 22 51 34	**www.schneider-electric.com.br**
Brunei (Darussalam)	Contacts are assured by	**Schneider Electric Singapore**		
Bulgaria	■ Schneider Electric	Expo 2000, Boulevard Vaptzarov 1407 Sofiav	Tel.: +3592 919 42 Fax: +3592 962 44 39	**www.schneiderelectric.bg**
Burkina Faso	Contacts are assured by	**Schneider Electric Ivory Coast**		
Burundi	Contacts are assured by	**Schneider Electric Kenya**		
Cambodia	Contacts are assured by	**Schneider Electric Viet Nam**		
Cameroon	■ Schneider Electric Cameroon	166, rue de l'Hôtel de Ville BP12087 - Douala	Tel.: +237 343 38 84 Fax: +237 343 11 94	
Canada	■ Schneider Canada	19, Waterman Avenue M4 B1Y2 Toronto - Ontario	Tel.: +1 416 752 8020 Fax: +1 416 752 4203	**www.schneider-electric.ca**
Cape Verde	Contacts are assured by	**Schneider Electric Senegal**		
Caribee	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Cayman islands	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Central African Republic	Contacts are assured by	**Schneider Electric Cameroon**		
Chad	Contacts are assured by	**Schneider Electric Cameroon**		
Chile	■ Schneider Electric Chile S.A.	Avda. Pdte Ed. Frei Montalva, 6001-31 Conchali - Santiago	Tel.: +56 2 444 3000 Fax: +56 2 423 9335	**www.schneider-electric.co.cl**
China	■ Schneider Beijing	Landmark bldg-Room 1801 8 North Dong Sanhuan Rd Chaoyang District 100004 Beijing	Tel.: +86 10 65 90 69 07 Fax: +86 10 65 90 00 13	**www.schneider-electric.com.cn**

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Christmas island	Contacts are assured by	**Schneider Electric Australia**		
Cocos (Keeling) islands	Contacts are assured by	**Schneider Electric Australia**		
Colombia	■ Schneider Electric de Colombia S.A.	Calle 45A #102-48 Bogota DC	Tel.: +57 1 426 97 00 Fax: +57 1 426 97 40	
Comoros	Contacts are assured by	**Schneider Electric la Reunion**		
Congo	Contacts are assured by	**Schneider Electric Cameroon**		
Cook islands	Contacts are assured by	**Schneider Electric Australia**		
Costa Rica	■ Schneider Centroamérica Ltda.	1.5 kmts oeste de la Embajada Americana, Pavas, San José, Costa Rica C.A. Apartado: 4123-1000 San Jose	Tel.: +506 232-60-55 Fax: +506 232-04-26	**www.schneider-ca.com**
Croatia	■ Schneider Electric SA	Fallerovo Setaliste 22 HR - 10000 Zagreb	Tel.: +385 1 367 100 Fax: +385 1 367 111	
Cuba	■ Schneider Electric	Bureau de Liaison de La Havane Calle 36- N°306-Apto1 Entre 3ra y 5ta Avenida Miramar Playa Habana	Tel.: +53 724 15 59 Fax: +53 724 12 17	
Cyprus	■ Schneider Electric Cyprus	28 General Timayia Avenue Kyriakos Building, Block #A301 Larnaca 6046	Tel.: +00357 248 12646 Fax: +00357 246 37382	
Czech Republic	■ Schneider Electric CZ, s.r.o.	Thámova 13 Praha 8 - 186 00	Tel.: +420 2 810 88 111 Fax: +420 2 24 81 08 49	**www.schneider-electric.cz**
Democratic Rep. of Congo	Contacts are assured by	**Schneider Electric Cameroon**		
Denmark	■ Schneider Electric A/S	Baltorpbakken 14 DK-2750 Ballerup	Tel.: +45 44 73 78 88 Fax: +45 44 68 5255	**www.schneider-electric.dk**
Djibouti	Contacts are assured by	**Schneider Electric Egypt**		
Dominican Republic	■ Schneider Electric	Calle Jacinto Manon Esq. Federico Geraldino Edificio D' Roca Plaza Suite 402, Ens. Paraiso - Santo Domingo	Tel.: +1 809 334 66 63 Fax: +1 809 334 66 68	
Ecuador	■ Schneider Electric Ecuador SA	Av.Republica del Salvador 1082 y Nac Edificio Mansion Blanca-Quito	Tel. : +593 2 224 42 42 Fax : +593 2 224 42 94	
Egypt	■ Schneider Electric Egypt sae	68, El Tayaran Street Nasr City, 11371 - Cairo	Tel.: +20 24 01 01 19 Fax: +20 24 01 66 87	**www.schneider.com.eg**
El Salvador	Contacts are assured by	**Schneider Electric USA**		
Equatorial Guinea	Contacts are assured by	**Schneider Electric Cameroon**		
Eritrea	Contacts are assured by	**Schneider Electric Egypt**		
Estonia	■ Lexel Electric	Ehitajate tee 110 EE 12618 Talinn	Tel. : +372 650 97 00 Fax : +372 650 97 22	
Ethiopia	Contacts are assured by	**Schneider Electric Egypt**		
Falkland islands	Contacts are assured by	**Schneider Electric Brazil**		
Faroe islands	Contacts are assured by	**Schneider Electric Australia**		
Fiji	Contacts are assured by	**Schneider Electric Australia**		
Finland	■ Schneider Electric Oy	Sinimäentie 14 02630 Espoo	Tel. : +358 9 527 000 Fax : +358 9 5270 0376	**www.schneider-electric.fi**
France	■ Schneider Electric SA	5, rue Nadar 92500 Rueil Malmaison	Tel.: +33 (0)1 41 29 82 00 Fax: +33 (0)1 47 51 80 20	**www.schneider-electric.fr**
French Polynesia	Contacts are assured by	**Schneider Electric Australia**		
French West Indies	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Gabon	Contacts are assured by	**Schneider Electric Cameroon**		
Gambia	Contacts are assured by	**Schneider Electric Senegal**		
Georgia	Contacts are assured by	**Schneider Electric Russian Fed.**		
Germany	■ Schneider Electric GmbH	Gothaer Straße 29 D-40880 Ratingen	Tel.: +49210 240 40 Fax: +492 10 240 49 256	**www.schneiderelectric.de**
Ghana	■ Schneider Electric Ghana	PMB Kia 3rd Floor Opeibea House Airport Commercial Center Liberation road - Accra	Tel. : +233 21 70 11 687 Fax : +233 21 77 96 22	
Gilbraltar	Contacts are assured by	**Schneider Electric Spain**		
Greece	■ Schneider Electric AE	14th km - RN Athens-Lamia GR - 14564 Kifissia	Tel.: +302 106 29 52 00 Fax: +302 106 29 52 10	**www.schneider-electric.com.gr**
Greenland	Contacts are assured by	**Schneider Electric United States**		
Grenada	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Guadeloupe	Contacts are assured by	**Schneider Electric Martinique**		
Guam	Contacts are assured by	**Schneider Electric Australia**		

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Guinea	Contacts are assured by	**Schneider Electric Ivory Coast**		
Guyana	Contacts are assured by	**Schneider Electric United States**		
Haiti	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Heard & Mac Donald isl.	Contacts are assured by	**Schneider Electric Australia**		
Honduras	Contacts are assured by	**Schneider Electric United States**		
Hong Kong	■ Schneider Electric (Hong Kong) Ltd	Room 3108-28, 31th Floor, Sun Hung Kai Centre, 30 Harbour Road, Wanchai	Tel.: +852 25 65 06 21 Fax: +852 28 11 10 29	
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Iceland	Contacts are assured by	**Schneider Electric Denmark**		
India	■ Schneider Electric India	Max House, 1 Dr Jha Marg, Okhla 110 020 New Dehli	Tel. : +91 11 631 85 84 Tel. : +91 11 631 71 61	**www.schneiderelectric-in.com**
Indonesia	■ P.T. Schneider Indonesia	Ventura Building 7th Floor Jalan R.A. Kartini Kav.26 Cilandak - 12430 Jakarta	Tel.: +62 +21 750 44 06 Fax: +62 +21 750 44 15/ 16	**www.schneider-electric.co.id**
Iran (Islamic Republic of)	■ Telemecanique Iran	1047 Avenue VALI ASSR P.O. Box 15875-3547 15116 Teheran	Tel.: +98 218 71 01 42 Fax: +98 218 71 81 87	
Irak	■ Schneider Electric Industries SA	38050 Grenoble Cedex 9	Tel.: +33 04 76 60 54 27 Fax: +33 04 76 60 56 60	
Ireland	■ Schneider Electric Ireland	Maynooth Road Cellbridge - Co. Kildare	Tel.: +353+0 1 6012200 Fax: +353+0 1 6012201	**www.schneiderelectric.ie**
Italy	■ Schneider Electric S.p.A.	Centro Direzionale Colleoni Palazzo Sirio - Viale Colleoni, 7 20041 Agrate Brianza (Mi)	Tel.: +39 39 655 8111 Fax: +39 39 605 6237	**www.schneiderelectric.it**
Ivory Coast	■ Schneider Electric Afrique de l'Ouest	Rue Pierre et Marie Curie 18 BP 2027 Abidjan 18	Tel.: +225 21 75 00 10 Fax: +225 21 75 00 30	
Jamaica	■ Schneider Electric	Shop#5, Plaza Dunrobin 30 Dunrobin Avenue - Kingstown	Tel. : +1876 755 41 27 Tel. : +931 87 74	
Japan	■ Schneider Electric Japan Ltd	Torigoe F. Bldg 1-8-2, Torigoe Taito-Ku - 111-0054 Tokyo	Tel.: +81 358 35 35 81 Fax: +81 358 35 35 85	**www.schneider-electric.co.jp**
Jordan	■ Schneider Electric Industr. Jordan	Jordan University Street Abu Al Haj Commercial Complex 2nd Floor - Office # 202 - Amman	Tel.: 962 65 16 78 87 Fax: 962 65 16 79 1	
Kazakstan	■ Schneider Electric Kazakhstan Liaison Office	Prospekt Abaia 157 off 9 480009 Almaty	Tel. : +7 327 250 93 88 Tel. : +7 327 250 63 70	
Kenya	■ Schneider East Africa	Power Technics Complex Monbasa Road - PO Box 46345 Nairobi	Tel. : +254 2.824.156 Fax : +254 2.824.157	
Kiribati	Contacts are assured by	**Schneider Electric Australia**		
Korea	■ Schneider Electric Korea Ltd	3Floor, Cheil Bldg., 94-46, 7-Ka Youngdeungpodong, Youngdeungpo-ku 150-037 Seoul	Tel. : +82 2 2630 9700 Fax : +82 2 2630 9800	**www.csinfo.co.kr/schneider/**
Kuwait	■ Schneider Electric Kuwait	Al Gaas Tower - Sharq 2nd Floor PO Box 20092 - 13 061 Safat	Tel.: +965 240 75 46 Fax: +965 240 75 06	
Kyrgyz Republic	Contacts are assured by	**Schneider Electric Russian Fed.**		
Laos	Contacts are assured by	**Schneider Electric Thailand**		
Latvia	■ Lexel Electric	60A A.Deglava str. LV1035 Riga	Tel. : +371 780 23 74/75 Fax : +371 754 62 80	
Lebanon	■ Schneider Electric Liban	Tabaris, Avenue Charles Malek Immeuble Ashada, 8 P.O. Box 166223 - Beyrouth	Tel. : +961 1 20 46 20 Tel. : +961 1 20 31 19	
Lesotho	Contacts are assured by	**Schneider Electric South Africa**		
Liberia	Contacts are assured by	**Schneider Electric Ghana**		
Libya	Contacts are assured by	**Schneider Electric Tunisia**		
Liechtenstein	Contacts are assured by	**Schneider Electric Switzerland**		
Lithuania	■ Lexel Electric	44, Verkiu str. LT-2012 Vilnius	Tel. : +370 278 59 59/61 Fax : +370 278 59 60	
Loro Sae	Contacts are assured by	**Schneider Electric Australia**		
Luxembourg	■ Schneider Electric Industrie SAS	Agence de Metz 1, Rue Graham Bell - BP n° 35190 57075 Metz cedex 3 - France	Tel.: 33 03 87 39 06 03 Fax: 33 03 87 74 25 96	**www.schneider-electric.fr**
Macau	Contacts are assured by	**Schneider Electric China**		

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Madagascar	Contacts are assured by	**Schneider Electric la Reunion**		
Malawi	Contacts are assured by	**Schneider Electric South Africa**		
Malaysia	■ Schneider Electric (Malaysia) Sdn Bhd	No.11 Jalan U1/19, Seksyen U1 Hicom-Glenmarie Industrial Park 40150 Shah Alam Selangor Darul Ehsan	Tel. : (603) 7883 6333 Fax : (603) 7883 6188	**www.schneider-electric.com.my**
Maldives	Contacts are assured by	**Schneider Electric Reunion**		
Mali	Contacts are assured by	**Schneider Electric Senegal**		
Malta	Contacts are assured by	**Schneider Electric Tunisia**		
Marshall islands	Contacts are assured by	**Schneider Electric Australia**		
Martinique	■ Schneider Electric	Schneider Electric Immeuble Cottrell - ZI de la Lézarde 97232 Le Lamentin	Tel.: +05 96 51 06 00 Fax: +05 96 51 11 26	
Mauritania	Contacts are assured by	**Schneider Electric Senegal**		
Mauritius	■ Schneider Electric	Route côtière Calodyne - Mauritius	Tel.: 230 282 18 83 Fax: 230 282 18 84	
Mayotte	Contacts are assured by	**Schneider Electric Reunion**		
Mexico	■ Groupe Schneider Mexico	Calz. Rojo Gomez N° 1121-A Col. Guadalupe del Moral México, D.F. - C.P. 09300	Tel.: +525 686 30 00 Fax: +525 686 24 09	**www.schneider-electric.com.mx**
Micronesia	Contacts are assured by	**Schneider Electric Australia**		
Moldova	Contacts are assured by	**Schneider Electric Romania**		
Monaco	Contacts are assured by	**Schneider Electric France**		
Mongolia	Contacts are assured by	**Schneider Electric Russian Fed.**		
Montserrat	Contacts are assured by	**Schneider Electric Dominican Rep.**		
Morocco	■ Schneider Electric Morocco	26, rue Ibnou Khalikane Quartier Palmiers 20100 Casablanca	Tel.: +212 299 08 48 to 57 Fax: +212 299 08 67 and 69	**www.schneider.co.ma**
Mozambique	Contacts are assured by	**Schneider Electric South Africa**		
Myanmar	Contacts are assured by	**Schneider Electric Singapore**		
Namibia	Contacts are assured by	**Schneider Electric South Africa**		
Nauru	Contacts are assured by	**Schneider Electric Australia**		
Nepal	Contacts are assured by	**Schneider Electric India**		
Netherlands	■ Schneider Electric BV	Waarderweg 40 - Postbus 836 2003 RV Haarlem	Tel.: +31 23 512 4124 Fax: +31 23 512 4100	**www.schneider-electric.nl**
Netherlands Antilles	Contacts are assured by	**Schneider Electric Dominican Rep.**		
New Caledonia	Contacts are assured by	**Schneider Electric Australia**		
New Zealand	■ Schneider Electric (NZ) Ltd	14 Charann Place Avondale P.O. Box 15355 - New Lynn Auckland	Tel. : +64 9 829 04 90 Fax : +64 9 829 04 91	**www.schneider-electric.co.nz**
Nicaragua	Contacts are assured by	**Schneider Electric United States**		
Niger	Contacts are assured by	**Schneider Electric Ivory Coast**		
Nigeria	■ Schneider Electric Nigeria Limited	Biro plaza - 8th Floor - Plot 634 Abeyemo Alakija Street Victoria Islan - Lagos	Tel. : +234 1 2702973 Fax : +234 1 2702976	
Niue	Contacts are assured by	**Schneider Electric Australia**		
Norfolk island	Contacts are assured by	**Schneider Electric Australia**		
North Korea	Contacts are assured by	**Schneider Electric China**		
Northern Mariana islands	Contacts are assured by	**Schneider Electric Australia**		
Norway	■ Schneider Electric Norge A/S	Solgaard Skog 2 Postboks 128 - 1501 Moss	Tel.: +47 6924 9700 Fax: +47 6925 7871	**www.schneider-electric.no**
Oman	■ Schneider Electric CA	c/o Arab Development Co PO Box 439 - 113 Muscat	Tel.: +968 77 163 64 Fax: +968 77 104 49	
Pakistan	■ Schneider Electric Pakistan	43-L, 2nd floor, M.M. Alam Road, Gulberg II - Lahore	Tel.: +92 42 5754471 à 73 Fax: +92 42 5754474	
Palau	Contacts are assured by	**Schneider Electric Australia**		
Panama	Contacts are assured by	**Schneider Electric United States**		
Papua New Guinea	Contacts are assured by	**Schneider Electric Australia**		
Paraguay	Contacts are assured by	**Schneider Electric Uruguay**		
Peru	■ Schneider Electric Peru S.A.	Los Telares n°231 Urb. Vulcano, Ate Lima 03	Tel.: +511 348 44 11 Fax: +511 348 05 23	**www.schneider-electric.com.pe**

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Pitcairn	Contacts are assured by	**Schneider Electric Australia**		
Poland	■ Schneider Electric Polska Sp.zo.o.	ul. Lubinowa 4a 03-878 - Warszawa	Tel.: +48 22 511 8 200 Fax: +48 22 511 8 210	**www.schneider-electric.pl**
Portugal	■ Schneider Electric Portugal	Av.do Forte, 3 Edificio Suécia II, Piso 3-A CP 2028 Carnaxide 2795 Linda-A-Velha	Tel.: +351 21 416 5800 Fax: +351 21 416 5857	**www.schneiderelectric.pt**
Puerto Rico	Contacts are assured by	**Schneider Electric United States**		
Qatar	■ Schneider Electric Qatar Branch	c/o Khalifa BinFahred Al Thani Trad.and Co - P.O. Box 4484 Doha	Tel.: +97 4424358 Fax: +97 4424358	
Reunion	■ Schneider Electric	Immeuble Futura, 190, rue des 2 canons BP 646 - 97497 Sainte Clothilde	Tel.: +262 28 14 28 Fax: +262 28 39 37	
Romania	■ Schneider Electric	Bd Ficusului n°42 Apimondia, Corp.A, et.1, Sector 1 Bucuresti	Tel.: +401 203 06 50 Fax: +401 232 15 98	**www.schneider-electric.ro**
Russian Federation	■ Schneider Electric ZAO	Enisseyskaya 37 129 281 Moscow	Tel.: +7095 797 40 00 Fax: +7095 797 40 03	**www.schneider-electric.ru**
Rwanda	Contacts are assured by	**Schneider Electric Kenya**		
Samoa	Contacts are assured by	**Schneider Electric Australia**		
San Marino	Contacts are assured by	**Schneider Electric Italy**		
Sandwich & Georgia island	Contacts are assured by	**Schneider Electric Australia**		
Sao Tome & Principe	Contacts are assured by	**Schneider Electric Senegal**		
Saudi Arabia	■ Schneider Electric	Second Industrial City P.O. Box 89249 - 11682 Riyadh	Tel.: +966 1 265 1515 Fax: +966 1 265 1860	
Senegal	■ Schneider Electric Sénégal	BP 15952 - Dakar-Fann Rond point N'Gor - Dakar	Tel.: +221 820 68 05 Fax: +221 820 58 50	
Seychelles	Contacts are assured by	**Schneider Electric Reunion**		
Sierra Leone	Contacts are assured by	**Schneider Electric Ghana**		
Singapore	■ Schneider Electric Singapore Pte Ltd	10 Ang Mo Kio Street 65 #02-17/20 TechPoint Singapore 569059	Tel.: +65 484 78 77 Fax: +65 484 78 00	**www.schneider-electric.com.sg**
Slovak Republic	■ Schneider Electric Slovakia spol s.r.o.	Borekova 10 SK-821 06 Bratislava	Tel. : +02 45 52 40 10 and 40 30 Fax : +02 45 52 40 00	**www.schneider-electric.sk**
Slovenia	■ Schneider Electric, d.o.o.	Dunasjka 47 1000 Ljubljana	Tel. : +386 1 23 63 555 Fax : +386 1 23 63 559	**www.schneider-electric.si**
Solomon islands	Contacts are assured by	**Schneider Electric Australia**		
Somalia	Contacts are assured by	**Schneider Electric Egypt**		
South Africa	■ Schneider Electric South Africa (PTY) Ltd	Private Bag X139 Halfway House 1685 - Midrand.	Tel.: +27 11 254 6400 Fax: +27 11 315 8830	**www.schneider-electric.co.za**
Spain	■ Schneider Electric España, S.A.	Pl. Dr. Letamendi, 5-7 08007 Barcelona	Tel.: +34 93 484 3100 Fax: +34 93 484 3308	**www.schneiderelectric.es**
Sri Lanka	■ Schneider Electric Industries SA	Liaison office SRI Lanka Level 3B Valiant towers 46/7 Nawam Mawatha-Colombo 2	Tel. : +94 77 48 54 89	**www.schneiderelectric-in.com**
St Helena	Contacts are assured by	**Schneider Electric Italy**		
St Kitts & Nevis	Contacts are assured by	**Schneider Electric Dominican Rep.**		
St Lucia	Contacts are assured by	**Schneider Electric Dominican Rep.**		
St Pierre et Miquelon	Contacts are assured by	**Schneider Electric Dominican Rep.**		
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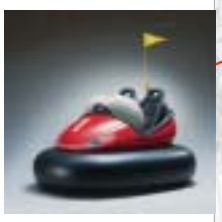

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- Human/Machine dialogue,
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- Supervision,
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Data-processing, Communication

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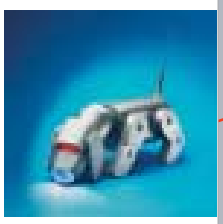

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Detection

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